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Waste Tank Summary Report for Month Ending May 31, 1998

Prepared for the U.S. Department of Energy
Office of Environmental Restoration and Waste Management

FLUOR DANIEL HANFORD, INC.
Richland, Washington

Hanford Management and Integration Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

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B. M. Hanlon
Lockheed Martin Hanford Corp.

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K. M. Broz   7/15/98

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WASTE TANK SUMMARY REPORT

B. M. Hanlon

ABSTRACT

This report is the official inventory for radioactive waste stored in underground tanks in the 200 Areas at the Hanford Site. Data that depict the status of stored radioactive waste and tank vessel integrity are contained within the report. This report provides data on each of the existing 177 large underground waste storage tanks and 63 smaller miscellaneous underground storage tanks and special surveillance facilities, and supplemental information regarding tank surveillance anomalies and ongoing investigations. This report is intended to meet the requirement of U. S. Department of Energy-Richland Operations Office Order 5820.2A, Chapter I, Section 3.e. (3) (DOE-RL, 1990, Radioactive Waste Management, U. S. Department of Energy-Richland Operation Office, Richland, Washington) requiring the reporting of waste inventories and space utilization for Hanford Tank Farm Tanks.

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CONTENTS

METRIC CONVERSION CHART		
1 inch	=	2.54 centimeters
1 foot	=	30.48 centimeters
1 gallon	=	3.80 liters
1 ton	=	0.90 metric tons

$$°F = \left(\frac{9}{5}\ °C\right) + 32$$

1 Btu/h = 2.930711 E-01 watts
(International Table)

WASTE TANK SUMMARY REPORT FOR MONTH ENDING MAY 31, 1998

Note: Changes from the previous month are in bold print.

I. WASTE TANK STATUS

Category	Quantity	Date of Last Change
Double-Shell Tanks[c]	28 double-shell	10/86
Single-Shell Tanks[a]	149 single-shell	07/88
Assumed Leaker Tanks[f]	67 single-shell	7/93
Sound Tanks	28 double-shell 82 single-shell	1986 7/93
Interim Stabilized Tanks[b,d]	119 single-shell	11/97
Not Interim Stabilized[f]	30 single-shell	11/97
Intrusion Prevention Completed[e]	108 single-shell	09/96
Controlled, Clean, and Stable[i]	36 single-shell	09/96
Watch List Tanks[g] Total	32 single-shell 6 double-shell 38 tanks	9/96[h] 6/93

[a] All 149 single-shell tanks were removed from service (i.e., no longer authorized to receive waste) as of November 21, 1980.

[b] Of the 119 tanks classified as Interim Stabilized, 64 are listed as Assumed Leakers. The total of 119 Interim Stabilized tanks includes one tank that does not meet current established supernatant and interstitial liquid stabilization criteria. (See Table I-1 footnotes, item #2)

[c] Six double-shell tanks are currently included on the Hydrogen Watch List and are thus prohibited from receiving waste in accordance with "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the *National Defense Authorization Act for Fiscal Year 1991*, November 5, 1990, Public Law 101-510.

[d] Of the 32 single-shell tanks on Watch Lists, 11 have been Interim Stabilized.

[e] Of the 32 single-shell tanks on Watch Lists, 11 have completed Intrusion Prevention (this category replaced Interim Isolation). (See Appendix C for "Intrusion Prevention" definition).

[f] Three of these tanks are Assumed Leakers (BY-105, BY-106, SX-104). (See Table H-1)

[g] See Section A tables for more information on Watch List Tanks. Eight tanks (A-101, S-102, S-111, SX-103, SX-106, U-103, U-105, and U-107) are currently on more than one Watch List.

[h] Dates for the Watch List tanks are "officially added to or removed from the Watch List" dates. (See Table A-1, Watch List Tanks, for further information.)

[i] The TY tank farm was officially declared Controlled, Clean, and Stable in March 1996. The TX tank farm and BX tank farms were declared CCS in September 1996. (BX-103 has been declared to have met current interim stabilization criteria, and is included in CCS - see also Appendix I).

II. WASTE TANK INVESTIGATIONS

This section includes all single-shell tanks or catch tanks which are showing surface level or interstitial liquid level (ILL) decreases, or drywell radiation level increases in excess of established criteria.

There are currently no tanks under investigation for ILL decreases or drywell radiation level increases which exceed the criteria. Drywell monitoring is done on an "as needed basis" with the exception of tanks C-105 and C-106 which are monitored monthly.

A. Assumed Leakers or Assumed Re-leakers: (See Appendix C for definition of "Re-leaker")

This section includes all single- or double-shell tanks or catch tanks for which an off-normal or unusual occurrence report has been issued, or for which a waste tank investigation is in progress, for assumed leaks or re-leaks. Tanks/catch tanks will remain on this list until either a) completion of Interim Stabilization, b) the updated occurrence report indicates that the tank/catch tank is not an assumed leaker, or c) the investigation is completed.

There are currently no tanks for which an off-normal or unusual occurrence report has been issued for assumed leaks or re-leaks.

B. Tanks with increases indicating possible intrusions:

This section includes all single-shell tanks and related receiver tanks for which the surveillance data show that the surface level or ILL has met or exceeded the increase criteria, or are still being investigated.

Candidate Intrusion List: Increase criteria in the following tanks indicate possible intrusions; however, no funds were allocated for performing intrusion investigations in FY 1998, due to higher priority work in the area of safe storage.

Tank 241-B-202
Tank 241-BX-101
Tank 241-BX-103
Tank 241-BY-103
Tank 241-C-101

244-AR Tanks and Sumps: Currently, all ventilation systems at 244-AR are shut down. Based on the weight factor gauges for the sumps and tanks, Tank 001 contains 1300 gallons, Tank 002 contains 12,250 gallons, Tank 003 contains 2000 gallons, and Tank 004 contains 250 gallons. Sump 001 contains 46 gallons, Sump 002 contains 0-2 gallons, and Sump 003 contains 3235 gallons. No change in tank contents. These volumes were updated February 28, 1998. Status of jet pumping: first attempts at jetting were unsuccessful. The next attempt to jet pump will be next fiscal year, or later, depending on funding.

CR-003-Catch Tank: Tank level has decreased approximately 500 gallons since October 1994. Even though there is no OSD criteria for leak detection, an investigation began November 14, 1997. A preliminary evaporative analysis suggests that evaporation is a viable means for the decrease. In January 1998, this catch tank received intrusions totaling approximately 400 gallons, and 48 gallons in February. A video was taken inside the vault on February 5, 1998. The sump is full of water (approximately 45 gallons) and the vault floor contains approximately 400 gallons. Until further investigation, it was determined that the water was from rain intrusion. **The level decreased 24 gallons each in March, April, and May.**

III. SURVEILLANCE AND WASTE TANK STATUS HIGHLIGHTS

1. Single-Shell Tanks Saltwell Jet Pumping (See Table E-6 footnotes for further information)

In April 1998, saltwell operations were shut down because of an Ecology investigation that concluded water additions are considered waste additions and waste additions are not allowed into SSTs. **On May 27, 1998, approval was received to resume stabilization activities that utilize small water additions.**

Tank 241-SX-104 - The saltwell pump was started September 26, 1997; 200 gallons were pumped in September before the transfer line between SX-104 and 244-S became plugged. The transfer line between SX-104 and 244-S was unplugged in December 1997. The pits have been reconfigured and the transfer route re-established. The flush line for the pump recirculation loop was reconfigured and placed inside the pit, to meet new Basis for Interim Operation (BIO) requirements. An in-tank video was taken February 4, 1998. Pumping resumed on March 20, following the installation of a dilution system designed to dilute the waste in the saltwell in order to make it easier to pump. Pumping was interrupted and then resumed on March 23, and again interrupted. An analysis showed that when the liquid is pumped from the tank into the buried transfer line, it is cooled by the surrounding soil. The sodium phosphate salts within the waste then solidify and eventually plug the line. **No pumping was done in May due to the Ecology finding above, which has now been resolved. Pumping will resume as soon as the transfer line is unplugged.** A total of 114 Kgallons has been pumped from this tank.

Tank 241-T-104 - Pumping started March 24, 1996. The pump failed in August and was replaced; pumping resumed in September and 5.2 Kgallons were pumped in October. Pumping was suspended October 18 for flammable gas issues, and resumed January 4, 1997. 1.6 Kgallons were pumped in January; no pumping was done in February and March, pending completion of the transfer line pressure test. Pumping resumed April 17, 1997. Pumping shut down due to USQ issues related to a Potential Inadequacy in the Authorization Basis (PIAB) concerning the clean out box volume. DOE approval of Justification for Continued Operation (JCO) for this PIAB was received March 31. **No pumping was done in May due to the Ecology finding above, which has now been resolved. Prerequisites have begun to resume pumping.** A total of 118.2 Kgallons has been pumped from this tank.

Tank 241-T-110 - Approval was received to reclassify this tank as a Facility Group III, to allow pumping per the flammable gas JCO Standing Order. Pumping started May 12, 1997. The flush line for the recirculation loop for the saltwell pump was reconfigured on December 31, 1997. The drain was cleared and verified that it drains properly. The PS-2 pressure switch has been repaired and passed calibration. Pumping shutdown due to USQ issues. DOE approval of Justification for Continued Operation received March 31. **No pumping was done in May due to the Ecology finding above, which has now been resolved. Work continues on the T-104/T-110 to 244-TX DCRT Transfer Line Annual Evaluation.** A total of 17.3 Kgallons has been pumped from this tank.

2. Single-Shell Tank TPA Interim Stabilization Milestones

All M-41-xx Milestones are being renegotiated. See also Table I-2, Tri-Party Agreement Single-Shell Tank Interim Stabilization Schedule.

3. Tank Waste Remediation System Safety Initiatives

The U. S. Secretary of Energy has directed that six safety initiatives be implemented in the Tank Waste Remediation System Program to accelerate the mitigation/resolution of the high priority waste tank safety issues at the Hanford Site. Forty-two milestones were established for accomplishing the initiatives.

No Safety Initiatives were scheduled to be completed in May.

The following Safety Initiatives remain to be completed:

SI 21 - Close SY Farm Flammable Gas Unreviewed Safety Questions (USQ)
SI 4a - Upgrade Alarm Panels in Seven Tank Farms
SI 4c - Complete Accelerated Walk-Downs and Field Verify Essential Drawings

SI 6d - Initiative C-106 Accelerated Retrieval

Completion dates for Safety Initiatives 21, 4c and 4d have been missed.
SI 4a - An assessment of the Completion Record is being evaluated for this Safety Initiative.

4. Double-Shell Tank 241-SY-101 Waste Level Increase

Although the waste level in tank SY-101 has risen slowing and steadily since last February, the surface level and hydrogen venting are within safety and operating limits. A mixer pump was installed in the tank in July 1993, which circulates liquid wastes from the tank's upper layer down to the bottom where jet nozzles discharge the fluid about two feet from the bottom. This prevents gas bubbles from building up at the bottom, and results in venting of small steady gas releases, rather than in large infrequent gas releases. Investigations continue on why the surface level is rising. The tank is venting the same volumes of hydrogen now as before the surface began rising, which indicates massive amounts of gas are not collecting within the tank.

Resolution Status: On February 11, 1998, the PRC recommended that the DOE-RL declare an Unreviewed Safety Question (USQ) over the continued level growth observed in this tank. The PRC implemented a standing order (SO) that placed operational restrictions on mixer pump operations. The SO released Operations from required actions at waste levels of 402 and 406 inches as measured by the Riser IC ENRAF. Additional activities are upcoming in support of the waste level growth in SY-101. **In May, the increase was at 311% of the criteria limit.** Funding has been approved for VFI (Void Fraction Instrument) measurement work. VFI sampling is scheduled for the first week in June. (See also Unusual Occurrence Report RL-PHMC-TANKFARM-1997-0106 below).

5. B Plant Deactivation

With the last transfer of contaminated liquid waste to the tank farms on May 29, B Plant, one of the original World War II processing plants, has passed another milestone on the road to deactivation. The last transfer of liquid waste means this plant will no longer add to the high level waste volume that has to be stored, evaporated and vitrified.

Throughout its 53-year operating history, B Plant produced more than 25 million gallons of highly radioactive waste. Over the past several years, discharges had been reduced to approximately 50,000 gallons per year.

The next step is isolation of the process cells, and a determination of the amount of radioactivity remaining in the cells. Deactivation of B Plant is scheduled to be completed in September, four years ahead of schedule.

6. Cross-Site Transfer Line Ready to Operate

Operational readiness approval for the supernate portion (liquid portions of the waste) of the Cross-Site Transfer Line for use in moving tank wastes from the 200 West Area to 200 East Area was received on May 28, 1998. This completed Tri-Party Agreement Milestones M-43-07, "Complete Project W-058 Replacement of Cross Site Transfer System," and M-43-07C, "Cross Site Transfer System Operation," two days ahead of the enforceable agreement date.

Thirty of the 149 single-shell waste tanks still hold liquid inventories waiting to undergo interim stabilization. Near-term plans call for this waste to be moved into safer double-shell tanks, where it will await vitrification. Twenty-four of these single-shell tanks are located in the 200 West Area, yet only one West Area double-shell tank (SY-102) currently is qualified to accept waste. Therefore, the new cross-site transfer line will provide the mechanism for transferring West Area single-shell tank waste to the several qualified East Area double-shell tanks.

7. Characterization Progress Status (See Appendix J)

Characterization is understanding the Hanford tank waste chemical, physical, and radiological properties to the extent necessary to ensure safe storage and interim operation, and ultimate disposition of the waste.

Characterization Progress for May:

Tank 241-SX-103 was sampled this month to satisfy Safety Screening, Organic Fuel and Historical Data Acquisition Data Quality Objectives. This brings the total number of tanks sampled since 1989 (per the DQO system) to 162.

Final tank characterization reports for tanks 241-B-107, BX-111, and U-112 were transmitted to Fluor Daniel Hanford on May 4, May 5, and May 28, 1998, respectively, to partially complete Performance Agreement TWR1.2.16, Tank Waste TCRs, and RL milestone T01-98-122, due September 30, 1998.

8. TANKFARM-1997-0106, Unusual Occurrence Report, "Potential Inadequacy in the Authorization Basis for Tank 241-SY-101," dated February 13, 1998. (This report was originally issued as "Off-Normal" on December 30, 1997, and upgraded to "Unusual" on February 13, 1998)

On December 29, 1997, an Unreviewed Safety Question (USQ) screening on a potential inadequacy in the Authorization Basis for tank SY-101 was presented to the TWRS Plant Review Committee (PRC). During 1997, the tank waste surface level in SY-101 began to increase in a manner which is not consistent with its previous behavior. Other waste parameters continue to remain consistent with the historical trends. The PRC concurred with the conclusion of the USQ screening and declared that a discovery exists in relation to the current waste level behavior in the tank. No limitations to plant operations were imposed as a result of this discovery.

In 1993, a mixer pump was installed in this tank. The pump was installed in the waste to mix the tank contents. This causes the gasses to be released continuously and prevents episodic gas releases. When the mixer pump was installed, the waste surface level in the tank was 406 inches. After a few months of pump operation, the waste level had decreased to below 400 inches. This level remained stable with no significant trends for the past four years. The surface level in SY-101 has historically been used as an indirect measure of gas retained in the tank waste. Increased retention of gas bubbles causes the waste level to rise, while the release of gas causes the level to drop.

The surface level in SY-101 has risen from 397.5 inches to 400.5 inches in 1997. The mixer pump long-term operation plan controls state that aggressive operations should be considered by the Test Review Group (TRG) when the surface level reaches 399.5 inches. On October 27, 1997, the number of pump runs was increased from three per week to four per week. This increase in the number of pump runs did not slow the surface level growth as suggested by the long-term operation plan. The increased operation of the mixer pump may have accelerated the rate of level growth of the tank waste. On December 9, 1997, the TRG determined that pump operations would return to three pump runs per week.

On February 11, 1998, the Plant Review Committee agreed to recommend to the DOE-RL that an Unreviewed Safety Question (USQ) existed with regard to the recent level growth in 241-SY-101. The Safety Assessment for Mixer Pump Operations assumes no level growth during normal pump operations. However, the level has increased steadily over the year, prompting a USQ determination which ultimately resulted in the recommendation to DOE-RL on February 12. As a result, this occurrence was upgraded to an Unusual Occurrence. A standing order was issued which implemented compensatory measures for operating the SY-101 Mixer Pump.

To ensure the appropriate amount of attention is given to Tank SY-101 level issues, the PRC directed that operations and maintenance be performed in accordance with the existing Authorization Basis, with restrictions on mixer pump operations. These restrictions have been included in Standing Order 98-15.

9. TANKFARM-1998-0039, Off-Normal Occurrence Report, "Potential Unreviewed Safety Question Exists With Respect to Single-Shell Tank 241-AX-101 Flammable Gas Inventory," dated April 3, 1998

On April 2, 1998, the TWRS Plant Review Committee (PRC) determined a potential Unreviewed Safety Question (USQ) existed with respect to SST 241-AX-101 flammable gas inventory. Preliminary information suggests the tank may contain a higher volume of flammable gas than originally expected when the Facility Group assignment was made.

The PRC directed SST Management to apply more rigorous Facility Group II controls to the previously designated Facility Group III tank until further evaluations could be performed to validate the preliminary information.

A Standing Order was issued to direct all work activities associated with AX-101 to be in accordance with Facility Group II controls.

10. TANKFARM-1998-0040, Off-Normal Occurrence Report, "Potential Inadequacy of the Authorization Basis Regarding Initial Assumptions of the Replacement Cross Site Transfer System," dated April 6, 1998

On April 3, 1998, the Plant Review Committee (PRC) concluded that a discovery exists with respect to the assumptions of the Basis for Interim Operation (BIO) addendum II, (Replacement Cross Site Transfer System). This basis assumed that during a spray leak and pool spill event in the new diversion and vent stations, 100% of the airborne release would go through a designed HEPA system.

The Replacement Cross Site Transfer System includes encased transfer piping, leak detection, booster pumps, and two transfer structures (diversion box and vent station). These structures each contain a HEPA filter and are passively ventilated. Both structures are not hermetically sealed, so it cannot be assumed that all air escapes through the filter. Recent testing in which a high pressure condition was introduced, identified that the air flow through the HEPA filter is less than 100% but greater than 90% in both structures.

A new calculation note has been generated and revises the bounding spray leak and pool spill accident for the Replacement Cross Site Transfer System in two ways. First, the calculation of the release now assumes that 90% of the release passes through the HEPA filter. Secondly, the temperature range was changed from 30 to 120 degrees, consistent with the assumption used in the TWRS BIO for spray leaks in the balance of the TWRS transfer systems.

An Unreviewed Safety Question (USQ) screening was performed, resulting in "No" answers. The PRC concurred with these "No" answers.

As a result of this Potential Inadequacy of the Authorization Basis (PIAB), concurrence from the PRC is required prior to the operation of the Replacement Cross Site Transfer System.

Effective May 28, operational readiness approval for the supernate portion of the Cross Site Transfer Line to move liquid portions of the waste from the 200 West Area to the 200 East Area was received.

11. Standard Hydrogen Monitoring System (SHMS)

Performance Expectation TWR 1.1.4 to complete enhancements to gas sampling capability for Tank Farm Operations (TFO) for flammable gas tanks by July 15, 1998, was completed on May 28, 1998, ahead of the "stretch goal" of May 31, 1998. The work necessary to achieve this milestone included installation of Standard Hydrogen Monitoring System (SHMS) units on three tanks (241-SX-103, U-102 and U-105), and Acceptance for Beneficial Use (ABU) by TFO on sixteeen units (241-A-101, AY-102, AZ-101, AZ-102, AN-101, AN-107, BY-105, C-106, S-101, S-106, S-107, S-109, SY-102, SX-103, U-102 and U-105). The SHMS units provide the capability for continuous vapor monitoring, as well as gas sampling, on tanks suspected of releasing dangerous amounts of flammable gases into the dome space.

APPENDIX A

WASTE TANK SURVEILLANCE MONITORING TABLES

TABLE A-1. WATCH LIST TANKS

May 31, 1998

These tanks have been identified as Watch List Tanks in accordance with Public Law 101-510, Section 3137, "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," (1990). These tanks have been identified because they "... may have a serious potential for release of high-level waste due to uncontrolled increases in temperature or pressure."

Single-Shell Tanks Tank No.	Watch List	Officially Added to Watch List
A-101 (*)	Hydrogen	1/91
	Organics	5/94
AX-101	Hydrogen	1/91
AX-102	Organics	5/94
AX-103	Hydrogen	1/91
B-103	Organics	1/91
C-102	Organics	5/94
C-103	Organics	1/91
C-106	High Heat Load	1/91
S-102 (*)	Hydrogen,	1/91
	Organics	1/91
S-111 (*)	Hydrogen	1/91
	Organics	5/94
S-112	Hydrogen	1/91
SX-101	Hydrogen	1/91
SX-102	Hydrogen	1/91
SX-103 (*)	Hydrogen	1/91
	Organics	5/94
SX-104	Hydrogen	1/91
SX-105	Hydrogen	1/91
SX-106 (*)	Hydrogen,	1/91
	Organics	1/91
SX-109	Hydrogen because other tanks vent thru it	1/91
T-110	Hydrogen	1/91
T-111	Organics	2/94
TX-105	Organics	1/91
TX-118	Organics	1/91
TY-104	Organics	5/94
U-103 (*)	Hydrogen	1/91
	Organics	5/94
U-105 (*)	Hydrogen	1/91
	Organics	5/94
U-106	Organics	1/91
U-107 (*)	Organics	1/91
	Hydrogen	12/93
U-108	Hydrogen	1/91
U-109	Hydrogen	1/91
U-111	Organics	8/93
U-203	Organics	5/94
U-204	Organics	5/94
32 Tanks (*)		

Double-Shell Tanks Tank No.	Watch List	Officially Added to Watch List
AN-103	Hydrogen	1/91
AN-104	Hydrogen	1/91
AN-105	Hydrogen	1/91
AW-101	Hydrogen	6/93
SY-101	Hydrogen	1/91
SY-103	Hydrogen	1/91
6 Tanks		

TANKS BY WATCH LIST

Hydrogen	Organics
A-101	A-101
AX-101	AX-102
AX-103	B-103
S-102	C-102
S-111	C-103
S-112	S-102
SX-101	S-111
SX-102	SX-103
SX-103	SX-106
SX-104	T-111
SX-105	TX-105
SX-106	TX-118
SX-109	TY-104
T-110	U-103
U-103	U-105
U-105	U-106
U-107	U-107
U-108	U-111
U-109	U-203
AN-103	U-204
AN-104	20 Tanks
AN-105	
AW-101	
SY-101	**High Heat**
SY-103	C-106
25 Tanks	1 Tank

32 Single-Shell tanks
6 Double-Shell tanks
38 Tanks on Watch Lists

(*) Eight tanks are on more than one Watch List
All tanks were removed from the Ferrocyanide Watch List; see Table A-2 for list and dates.

TABLE A-2. ADDITIONS/DELETIONS TO WATCH LISTS BY YEAR

May 31, 1998

Added/Deleted dates may differ from dates that tanks were officially added to the Watch Lists. (See Table A-1).

	Ferrocyanide		Hydrogen		Organics		High Heat	Total Tanks (1) SST	DST	Total
1/91 Original List -Response to Public Law 101-510	23		23		8		1	47	5	52
Added 2/91 (revision to Original List)	1	T-107						1		1
Total - December 31, 1991	24		23		8		1	48	5	53
Added 8/92			1	AW-101					1	1
Total - December 31, 1992	24		24		8		1	48	6	54
Added 3/93					1	U-111		1		
Deleted 7/93	-4	(BX-110) (BX-111) (BY-101) (T-101)						-4		
Added 12/93			1	(U-107)				0		
Total - December 31, 1993	20		25		9		1	45	6	51
Added 2/94					1	T-111		1		
Added 5/94					10	A-101 AX-102 C-102 S-111 SX-103 TY-104 U-103 U-105 U-203 U-204		4		
Deleted 11/94	-2	(BX-102) (BX-106)						-2		
Total - December 31, 1994, & December 31, 1995	18		25		20		1	48	6	54
Deleted 6/96	-4	(C-108) (C-109) (C-111) (C-112)						-4		
Deleted 9/96	-14	(BY-103) (BY-104) (BY-105) (BY-106) (BY-107) (BY-108) (BY-110) (BY-111) (BY-112) (T-107) (TX-118) (TY-101) (TY-103) (TY-104)						-12		
Total - May 31, 1998	0		25		20		1	32	6	38

(1) Eight tanks are on more than one list: A-101, S-102, S-111, SX-103, SX-106, U-103, U-105, and U-107; therefore the total of tanks added or deleted will depend upon whether a tank is also on another list.

TABLE A-3. TEMPERATURE MONITORING IN WATCH LIST TANKS (Sheet 1 of 2)

May 31, 1998

All Watch List tanks are reviewed for increasing temperature trends. Temperatures in these tanks are monitored by the Tank Monitor And Control System (TMACS), unless indicated otherwise.

Temperatures are taken in the waste unless in-waste thermocouples are out of service. See footnote (3). Temperatures below are the highest temperatures recorded in these tanks during this month, and do not exceed the maximum criteria limit for this month.

Temperatures in Degrees F.

Total Waste in Inches

Hydro/Flammable Gas			Organic Salts			High Heat		
Tank No.	Temp.	Total Waste	Tank No.	Temp.	Total Waste	Tank No.	Temp.	Total Waste
A-101	148	347	A-101	148	347	C-106 (2)	144	72
AX-101 (*)(3)	130	272	AX-102 (*)	73	14	1 Tank		
AX-103 (*)	107	40	B-103 (*)(3)	61	17			
S-102	104	207	C-102	80	149			
S-111	89	224	C-103	112	66			
S-112	83	239	S-102	104	207			
SX-101	133	171	S-111	89	224			
SX-102	143	203	SX-103	163	242			
SX-103	163	243	SX-106	106	201			
SX-104	154	229	T-111	62	158			
SX-105	180	254	TX-105	98	228			
SX-106	106	201	TX-118	73	134			
SX-109 (1)	139	96	TY-104	62	24			
T-110	63	133	U-103	85	166			
U-103	85	166	U-105	88	147			
U-105	89	147	U-106	79	78			
U-107	78	143	U-107	78	166			
U-108	87	166	U-111	78	115			
U-109	82	164	U-203	62	12			
AN-103	107	348	U-204	60	12			
AN-104	108	384	20 Tanks					
AN-105	106	410						
AW-101 (*)	97	410						
SY-101	119	405						
SY-103	94	270						
25 Tanks								

(*) Temperatures in these tanks are taken manually on a weekly basis.

38 Tanks are on the Watch List (8 tanks are on more than one list: A-101, S-102, S-111, SX-103, SX-106, U-103, U-105, U-107)

All tanks have been removed from the Ferrocyanide Watch List. See Table A-2 for list and dates.

TABLE A-3. TEMPERATURE MONITORING IN WATCH LIST TANKS
(sheet 2 of 2)

Notes:

Unreviewed Safety Question(USQ):
There is a USQ currently associated with all single-shell tanks, resulting in special controls required, and limiting the work in the tanks. Pumping is on hold until the DOE-RL approval is received for each tank.

Hydrogen/Flammable Gas:
Tanks which are suspected to have a significant potential for hydrogen/flammable gas generation, entrapment, and episodic release. The USQ associated with these tanks is due of the potential consequences of a radiological release resulting from a flammable gas burn, an event not analyzed in the SST Safety Analysis Report (SAR).

Organic Salts:
Single-shell tanks containing concentrations of organic salts ≥3 weight% of total organic carbon (TOC)(equivalent to 10 wt% sodium acetate). The USQ associated with these tanks is because it has been concluded there is a small potential for an organic nitrate accident. Double-shell tanks have >3 weight% TOC but are not on the Watch List because they contain mostly liquid, and there is no credible organic safety concern for tanks which contain mostly liquid.

High Heat:
Tanks which contain heat generating strontium-rich sludge and require drainable liquid to be maintained in the tank to promote cooling. Only tank C-106 is on the High Heat Watch List because in the event of a leak, without water additions the tank could exceed temperature limits resulting in unacceptable structural damage. The tank is cooled through evaporation in conjunction with active ventilation. Water is periodically added as evaporation takes place.

Active ventilation:
There are 15 single-shell tanks on active ventilation (eight are on the Watch List as indicated by an asterisk):

C-105	SX-107
C-106 *	SX-108
SX-101 *	SX-109 *
SX-102 *	SX-110
SX-103 *	SX-111
SX-104 *	SX-112
SX-105 *	SX-114
SX-106 *	

Note: A-104, 105 and 106 exhauster has been out of service since 1991 and is no longer considered actively ventilated. Although C-104 has a cascade line with C-105, it is not considered to be actively ventilated.

Footnotes:

(1) Tank SX-109 has the potential for flammable gas accumulation only because other SX tanks vent through it.

(2) Tank C-106 is on the Watch List because in the event of a leak without water additions the tank could exceed temperature limits resulting in unacceptable structural damage.

(3) There are no in-waste temperatures for tanks AX-102 and B-103. The waste level in these tanks is lower than the lowest thermocouple in these trees. Temperatures in this table show the maximum in the tanks taken in the vapor space.

TABLE A-4. TEMPERATURE MONITORING IN NON-WATCH LIST TANKS

May 31, 1998

SINGLE-SHELL TANKS WITH HIGH HEAT LOADS (>40,000 Btu/hr)

Ten tanks have high heat loads for which temperature surveillance requirements are established by OSD-T-151-00013. Only one of these tanks (241-C-106) is on the High Heat Watch List. In an analysis, WHC-SD-WM-ER-333, "Evaluation of Heat Sources in High Heat Single Shell Tanks," Bander, 1994, it was determined that six of the ten tank have heat sources greater than 40,000 Btu/h. Additionally, although four tanks have heat loads less than 40,000 Btu/h, it is recommended that these tanks remain on the High Heat Load Listbecause of uncertainties in the parameters used in these analyses. It is estimated that the current analysis predicts the heat loads within +/- 20%.

Temperatures in these tanks did not exceed OSD requirements for this month. All high heat load tanks, with the exception of 241-A-104 and 241-A-105, are on active ventilation. All high heat load tanks are monitored by the Tank Monitor and Control System (TMACS), with the exception of A-104 and A-105, which are taken manually on a weekly basis.

Tank No.	Temperature (F.)	Total Waste In Inches
A-104	172	10
A-105	145	07
C-106 (*)	144	72
SX-107	162	43
SX-108	184	37
SX-109	139	96
SX-110	161	28
SX-111	184	51
SX-112	145	39
SX-114	176	71
10 Tanks		

(*) C-106 on High Heat Load Watch List

Highest temperature in 34 lateral thermocouples beneath A-105: 233

SINGLE SHELL TANKS WITH LOW HEAT LOADS (<=40,000 Btu/hr)

There are 108 low heat load non-watch list tanks. Temperatures in tanks connected to TMACS are monitored by TMACS; temperatures in those tanks not yet connected to TMACS are manually taken semiannually in January and July. Temperatures obtained were within historical ranges for the applicable tank.

No temperatures have been obtained for several years in the tanks listed below. Most of these tanks have no thermocouple tree.

Tank No.	Tank No.
BX-104	TX-101
BY-102	TX-110
BY-109	TX-114
C-204	TX-116
SX-115	TX-117
T-102	U-104
T-105	

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 1 of 6)

May 31, 1998

The following table indicates whether Single-Shell tank monitoring was in compliance with the requirements as specified in the applicable documents as of the last day of the applicable month:

NOTE:
All Watch List and High Heat tank temperature monitoring is in compliance. (4)
All Dome Elevation Survey monitoring is in compliance.
All Psychrometrics monitoring is in compliance (2).
Drywell monitoring is done "as needed" (9).
In-tank photos/videos are taken "as needed" (3)

LEGEND:	
(Shaded)	= in compliance with all applicable documentation
N/C	= noncompliance with applicable documentation
O/S	= Out of Service
Neutron	= LOW readings taken by Neutron probe
POP	= Plant Operating Procedure, TO-040-650
MT/FIC/ ENRAF	= Surface level measurement devices
OSD	= Operating Specifications Doc., OSD-T-151-00013, -00031
N/A	= Not applicable (not monitored, or no monitoring schedule)
None	= Applicable equipment not installed

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSR,OSD)			LOW Readings (OSD)(5,7)
	Watch List	High Heat			MT	FIC	ENRAF	Neutron
A-101	X			LOW	None	None		
A-102				None	None		None	None
A-103				LOW	None	None		
A-104		X		None	None	None		None
A-105		X		None		None	None	None
A-106				None	None	None		None
AX-101	X			LOW	None	None		(10)
AX-102	X			None		None	None	None
AX-103	X			None	None	None		None
AX-104				None	None	None		None
B-101				None	None		None	None
B-102				ENRAF	None	None		None
B-103	X			None	None		None	O/S
B-104				LOW		None	None	
B-105				LOW		None	None	
B-106				FIC	None		None	None
B-107				None		None	None	None
B-108				None	None		None	None
B-109				None		None	None	None
B-110				LOW	O/S	None	None	
B-111				LOW	None		None	
B-112				ENRAF	None	None		None
B-201				MT		None	None	None
B-202				MT		None	None	None
B-203				MT		None	None	None
B-204				MT		None	None	None
BX-101				ENRAF	None	None		None
BX-102				None	None	None		None
BX-103				ENRAF	None	None		None
BX-104			None	ENRAF	None	None		None
BX-105				None	None	None		None
BX-106				ENRAF	None	None		None
BX-107				ENRAF	None	None		None

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS

149 TANKS (Sheet 2 of 6)

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(5,7)
	Watch List	High Heat			MT	FIC	ENRAF	Neutron
BX-108				None	None	None		None
BX-109				None	None	None		None
BX-110				None	None	None		None
BX-111				LOW	None	None		
BX-112				ENRAF	None	None		None
BY-101				LOW		None	None	
BY-102			None	LOW	O/S	None	None	
BY-103				LOW	None	None		
BY-104				LOW	O/S	None	None	
BY-105				LOW		None	None	
BY-106				LOW		None	None	
BY-107				LOW		None	None	
BY-108				None		None	None	None
BY-109			None	LOW	None	O/S	None	
BY-110				LOW	None	None		
BY-111				LOW	None	None		
BY-112				LOW		None	None	
C-101				None		None	None	None
C-102	X			None	None		None	None
C-103	X			ENRAF	None	None		None
C-104				None	None		None	None
C-105				None	None	None		None
C-106 (3)	X	X		ENRAF	None	None		None
C-107				ENRAF	None	None		None
C-108				None		None	None	None
C-109				None		None	None	None
C-110				MT		None	None	None
C-111				None		None	None	None
C-112				None	None	None		None
C-201				None		None	None	None
C-202				None		None	None	None
C-203				None		None	None	None
C-204			None	None		None	None	None
S-101				ENRAF	None	None		
S-102	X			ENRAF	None	None		
S-103				ENRAF	None	None		
S-104				LOW		None	None	
S-105				LOW	None	None		
S-106				ENRAF	None	None		
S-107				ENRAF	None	None		None
S-108				LOW	None	None		
S-109				LOW	None	None		
S-110				LOW	None	None		
S-111	X			ENRAF	None	None		
S-112	X			LOW	None	None		
SX-101	X			LOW	None	None		
SX-102	X			LOW	None	None		
SX-103	X			LOW	None	None		
SX-104	X			LOW	None	None		
SX-105	X			LOW	None	None		
SX-106	X			ENRAF	None	None		
SX-107		X		None		None	None	None
SX-108		X		None		None	None	None

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 3 of 6)

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(5,7)
	Watch List	High Heat			MT	FIC	ENRAF	Neutron
SX-109 (3)	X	X		None		None	None	None
SX-110		X		None		None	None	None
SX-111		X		None		None	None	None
SX-112		X		None		None	None	None
SX-113				None		None	None	None
SX-114		X		None		None	None	None
SX-115			None	None		None	None	None
T-101				None	None	None		None
T-102			None	ENRAF	None	None		None
T-103				None	None	None		None
T-104				LOW	None	None		
T-105			None	None	None	None		None
T-106				None	None	None		None
T-107				ENRAF	None	None	O/S (11)	None
T-108				ENRAF	None	None		None
T-109				None	None	None		None
T-110	X			LOW	None	None		
T-111	X			LOW	None	None		
T-112				ENRAF	None	None		None
T-201				MT		None	None	None
T-202				MT		None	None	None
T-203				None		None	None	None
T-204				MT		None	None	None
TX-101			None	ENRAF	None	None		None
TX-102				LOW	None	None		
TX-103				None	None	None		None
TX-104				None	None	None		None
TX-105	X			None	None	None		None (7)
TX-106				LOW	None	None		
TX-107				None	None	None		None
TX-108				None	None	None		None
TX-109				LOW	None	None		
TX-110			None	LOW	None	None		
TX-111				LOW	None	None		
TX-112				LOW	None	None		
TX-113				LOW	None	None		
TX-114			None	LOW	None	None		
TX-115				LOW	None	None		
TX-116			None	None	None	None		None
TX-117			None	LOW	None	None		
TX-118				LOW	None	None		
TY-101				None	None	None		None
TY-102				ENRAF	None	None		None
TY-103				LOW	None	None		
TY-104				ENRAF	None	None		None
TY-105				None	None	None		None
TY-106				None	None	None		None
U-101				MT		None	None	None
U-102				LOW	None	None		
U-103	X			ENRAF	None	None		
U-104			None	None		None	None	None
U-105	X			ENRAF	None	None		
U-106	X			ENRAF	None	None		

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS
149 TANKS (Sheet 4 of 6)

Tank Number	Tank Category		Temperature Readings (4)	Primary Leak Detection Source (5)	Surface Level Readings (1) (OSD)			LOW Readings (OSD)(5,7)
	Watch List	High Heat			MT	FIC	ENRAF	Neutron
U-107	X			ENRAF	None	None		
U-108	X			LOW	None	None		
U-109	X			ENRAF	None	None		
U-110				None	None	None		None
U-111	X			LOW	None	None		
U-112				None		None	None	None
U-201				MT		None	None	None
U-202				MT		None	None	None
U-203	X			None		None	None	None
U-204	X			MT		None	None	None
Catch Tanks and Special Surveillance Facilities								
A-302-A	N/A	N/A	N/A	(6)	None	None		None
A-302-B	N/A	N/A	N/A	(6)		None	None	None
ER-311	N/A	N/A	N/A	(6)	None		None	None
AX-152	N/A	N/A	N/A	(6)		None	None	None
AZ-151	N/A	N/A	N/A	(6)	None		None	None
AZ-154	N/A	N/A	N/A	(6)		None	None	None
BX-TK/SMP	N/A	N/A	N/A	(6)		None	None	None
A-244 TK/SMP	N/A	N/A	N/A	(6)	None	None	None	None
AR-204	N/A	N/A	N/A	(6)			None	None
A-417	N/A	N/A	N/A	(6)	None	None	None	None
A-350	N/A	N/A	N/A	(6)	None	None	None	None
CR-003	N/A	N/A	N/A	(6)	None	None	None	None
Vent Sta.	N/A	N/A	N/A	(6)		None	None	None
S-302	N/A	N/A	N/A	(6)	None	None		None
S-302-A	N/A	N/A	N/A	(6)	None		None	None
S-304	N/A	N/A	N/A	(6)	None	O/S	None	None
TX-302-B	N/A	N/A	N/A	(6)		None	None	None
TX-302-C	N/A	N/A	N/A	(6)	None	None		None
U-301-B	N/A	N/A	N/A	(6)	None	None		None
UX-302-A	N/A	N/A	N/A	(6)	None	None		None
S-141	N/A	N/A	N/A	(6)	O/S (11)	None	None	None
S-142	N/A	N/A	N/A	(6)	O/S (11)	None	None	None
Totals: 149 tanks	32 Watch List Tanks (4)	10 High Heat Tanks (4)	N/C: 0		N/C: 0	N/C: 0	N/C: 0	N/C: 0

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS - 149 TANKS
(Sheet 5 of 6)

Footnotes:

1. All SSTs have either manual tape, FIC, (or ENRAF) surface level measuring devices. Some also have zip cords.

   ENRAF gauges are being installed to replace FICs (or sometimes manual tapes). The ENRAF gauges are being connected to TMACS, but many are currently being read manually from the field. See Table A-7 for list of ENRAF installations.

2. High heat tanks have active exhausters; psychrometrics can be taken in the high heat tanks. Psychrometric readings are taken on an "as needed" basis with the exception of tanks C-105 and C-106. Hanford Federal Facility Agreement and Consent Order," Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy," Fourth Amendment 1994 (Tri-Party Agreement) requires psychrometric readings to be taken in C-105 and C-106 on a monthly frequency. Also, SX-farm now has psychrometrics taken monthly.

3. C-106 and SX-109 - these tanks are on both category lists (Watch List and high heat list) - C-106 is the only tank on the high heat list included on the High Heat Watch List; SX-109 is on the Organics Watch List, and also on the high heat list (but not on the High Heat Watch List).

4. Temperature readings may be regulated by OSD or POP. Temperatures cannot be obtained in 13 low heat load tanks (see Table A-4). The OSD does not require readings or repair of out-of service thermocouples for the low heat load ($\leq$40,000 Btu/h) tanks. However, the POP requires that attempts are to be made semiannually in January and July to obtain readings for these tanks.

   Temperatures for many tanks are monitored continuously by TMACS; see Table A-8, TMACS Monitoring Status.

5. Document WHC-OSD-T-151-00031, "Operating Specifications for Tank Farm Leak Detection," requires that single-shell tanks with the surface level measurement device contacting liquid, partial liquid, or floating crust surface, will be monitored for leak detection on a daily basis. Tanks with a solid surface will be monitored for leak detection on a weekly basis by taking neutron scan data from a Liquid Observation Well (LOW), if an LOW is present. Tanks with a solid surface but without LOWs will not be monitored for leak detection if the tank has been interim stabilized, until an LOW is installed. Non-interim-stabilized tanks will have drywell surveys taken as a backup on a monthly basis if surface or interstitial level measurement equipment is unavailable. The OSD specifies what leak detection methods are to be used for each tank, and the requirements if the readings are not taken on the required frequency or if equipment is out of service.

6. Leak detection for the catch tanks is performed by monitoring for the buildup of liquid in the secondary containment (for most tanks with secondary containment) or for decrease in the liquid level for those tanks without secondary containment or secondary containment monitoring.

   Catch tanks 240-S-302 and 241-S-302-A are monitored for intrusions only, and are not subject to leak detection monitoring requirements until liquid is present above the intrusion level.

   Weight Time Factor is the surface level measuring device currently used in A-417, A-350 and 244-A-Tank/Sump. DCRT CR-003 is inactive and measured in gallons.

7. Document WHC-SD-WM-TI-605, REV. 0, dated January 1994, describes the rationale for Liquid Observation Well (LOW) installation priority. This priority is based on tank leak status, tank surface condition, and tank stabilization status. Also included is a listing of tanks with the waste level being below two feet which have no priority assigned because no effort will be made to install LOWs in the near future. LOW probes are unable to accurately monitor interstitial liquid levels less than two feet high.

TABLE A-5. SINGLE-SHELL TANKS MONITORING COMPLIANCE STATUS - 149 TANKS
(Sheet 6 of 6)

Tanks which will not receive LOWs:

A-102	BX-101	C-201	T-106
A-104	BX-103	C-202	T-108
A-105	BX-105	C-203*	T-109
AX-102	BX-106	C-204	TX-107
AX-104	BX-108	SX-110	TY-102
B-102	C-108	SX-113	TY-104
B-103	C-109	SX-115	TY-106
B-112	C-111	T-102	U-101
		T-103	U-112

Total - 34 Tanks *Surface level in C-203 is below 24 inches, therefore this tank is added to the list

8. TX-105 - the riser has been removed; the LOW has not been monitored since January 1987. Liquid levels are being taken.

9. All drywell scans are done by request only, when required in addition to, or as a BACKUP for, a PRIMARY leak detection method, per OSD-T-151-00031. Currently, there are only two tanks which require drywell scans (C-105 and C-106); these are taken monthly.

   Only two tank farms, A and SX, have laterals. There are currently no functioning laterals and no plans to prepare these for use.

10. AX-101 - LOW readings are taken by both gamma and neutron sensors.

11. T-107 - ENRAF is O/S. Readings taken monthly via drywell.

12. Catch Tanks S-141 and S-142: no M.T. readings.

TABLE A-6. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS

28 TANKS (Sheet 1 of 2)

May 31, 1998

The following table indicates whether Double-Shell tank monitoring was in compliance with the requirements as specified in the applicable documents as of the last day of the applicable month.

NOTE:

Dome Elevation Surveys are not required for DSTs.

Psychrometrics and in-tank photos/videos are taken "as needed" (2)

LEGEND:

(Shaded)	= In compliance with all applicable documentation
N/C	= Noncompliance with applicable documentation
FIC/ENRAF M.T.	= Surface level measurement devices
OSD	= OSD-T-151-0007, OSD-T-151-0031
None	= no M.T., FIC or ENRAF installed
O/S	= Out of Service
W.F.	= Weight Factor
Rad.	= Radiation

Tank Number	Watch List	Temperature Readings (3) (OSD)	Surface Level Readings (1) (OSD)			Radiation Readings		
						Leak Detection Pits (4) (OSD)		Annulus (OSD)
			M.T.	FIC	ENRAF	W.F.	Rad. (8)	
AN-101				None			(8)	
AN-102					None		(8)	
AN-103	X			None			(8)	
AN-104	X		O/S	None			(8)	
AN-105	X		O/S	None			(8)	
AN-106				O/S	None		(8)	
AN-107					None		(8)	
AP-101			O/S		None	O/S (9)	(8)	
AP-102					None	O/S (9)	(8)	
AP-103					None	O/S (9)	(8)	
AP-104			O/S		None	O/S (9)	(8)	
AP-105					None	O/S (9)	(8)	
AP-106					None	O/S (9)	(8)	
AP-107				(10)	None	O/S (9)	(8)	
AP-108					None	O/S (9)	(8)	
AW-101	X		O/S	None			(8)	
AW-102					(6)		(8)	
AW-103				None			(8)	
AW-104				None		O/S	(8)	
AW-105				None			(8)	
AW-106				None			(8)	
AY-101				None		O/S	(8)	(5)
AY-102				None			(8)	(5)
AZ-101			O/S	None			(8)	(5)
AZ-102					None		(8)	(5)
SY-101	X		O/S	None		(11)	(7)	
SY-102				None			(7)	
SY-103	X			None			(7)	
Totals: 28 tanks	6 Watch List Tanks	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0	N/C: 0

TABLE A-6. DOUBLE-SHELL TANKS MONITORING COMPLIANCE STATUS - 28 TANKS
(Sheet 2 of 2)

Footnotes:

1. Some double-shell tanks have both FIC and manual tape which is used when the FIC is out of service. Noncompliance (N/C) will be shown when no readings are obtained. ENRAF gauges are being installed to replace FICs. The ENRAF gauges are being connected to TMACS, but some are currently being read manually.

2. Psychrometric readings are taken on an "as needed" basis. No psychrometric readings are currently being taken in the double-shell tanks.

3. OSD specifies double-shell tank temperature limits, gradients, etc.

4. Applicable OSD and HNF-IP-0842, latest revisions, are used as guidelines for monitoring Leak Detection Pits. See also (8) below.

5. AY-102 annulus is O/S to facilitate vent line removal for Project W-030: Leak Detection Probe device is still monitored. AY-101 and AZ-101/102 are monitored only by the annulus Leak Detection Probe Measurement device.

6. AW-102 has ENRAF, FIC and M.T. At some point the FIC will be removed.

7. SY-101, SY-102, and SY-103: RAD equipment off or O/S.

8. USQ TF-97-0038, dated April 28, 1997, specifies discontinuing the use of leak detection pit radiation monitoring equipment in all double-shell tank farms where the leak detection pits are used as tertiary leak detection. This applies to all double-shell tank farms with the exception of SY-Farm.

   Also, two radiation monitors used for leak detection for transfer lines will not be discontinued (CRM-101B in AY farm and CRM-101/102-1 in AZ farm) - these were not included in the USQ. May 1998 - RAD monitoring is no longer required in these monitors per TSR-006 (Rev 0-6)

9. Weekly readings being obtained by Instrument Technicians in these tanks:
   AP-103C (for tanks AP-101 - 104)
   AP-105C (for tanks AP-105 - 108)

10. AP-107- fluctuations in the FIC readings are being attributed to FIC mechanical wear and design. Previous readings are now considered to be good data. The data will be monitored closely to determine if the readings remain stable.

11. SY-101 and SY-103: CWF readings are above normal range of 24 inches.

TABLE A-7. ENRAF SURFACE LEVEL GAUGE INSTALLATION AND DATA INPUT METHODS

May 31, 1998

LEGEND
- CASS = Computer Automated Surveillance System
- SACS = Surveillance Analysis Computer System
- TMACS = Tank Monitor and Control System
- Auto = Automatically entered into TMACS and electronically transmitted to SACS
- Manual = EITHER manually entered into CASS by field operators and electronically transmitted to SACS OR manually entered directly into SACS by surveillance personnel, from Field Data sheets

EAST AREA						WEST AREA					
Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method	Tank No.	Installed Date	Input Method
A-101	09/95	Manual	B-201			S-101	02/95	Manual	TX-101	11/95	Auto
A-102			B-202			S-102	05/95	Manual	TX-102	05/96	Auto
A-103	07/96	Manual	B-203			S-103	05/94	Auto	TX-103	12/95	Auto
A-104	05/96	Manual	B-204			S-104			TX-104	03/96	Auto
A-105			BX-101	04/96	Auto	S-105	07/95	Manual	TX-105	04/96	Auto
A-106	01/96	Manual	BX-102	06/96	Auto	S-106	06/94	Auto	TX-106	04/96	Auto
AN-101	08/96	Manual	BX-103	04/96	Auto	S-107	06/94	Auto	TX-107	04/96	Auto
AN-102			BX-104	05/96	Auto	S-108	07/95	Manual	TX-108	04/96	Auto
AN-103	08/95	Manual	BX-105	03/96	Auto	S-109	08/95	Manual	TX-109	11/95	Auto
AN-104	08/95	Manual	BX-106	07/94	Auto	S-110	08/95	Manual	TX-110	05/96	Auto
AN-105	08/95	Manual	BX-107	06/96	Auto	S-111	08/94	Auto	TX-111	06/96	Auto
AN-106			BX-108	05/96	Auto	S-112	05/95	Manual	TX-112	05/96	Auto
AN-107			BX-109	08/95	Auto	SX-101	04/95	Manual	TX-113	05/96	Auto
AP-101			BX-110	06/96	Auto	SX-102	04/95	Manual	TX-114	05/96	Auto
AP-102			BX-111	05/96	Auto	SX-103	04/95	Manual	TX-115	05/96	Auto
AP-103			BX-112	03/96	Auto	SX-104	05/95	Manual	TX-116	05/96	Auto
AP-104			BY-101			SX-105	05/95	Manual	TX-117	06/96	Auto
AP-105			BY-102			SX-106	08/94	Auto	TX-118	03/96	Auto
AP-106			BY-103	12/96	Manual	SX-107			TY-101	07/95	Auto
AP-107			BY-104			SX-108			TY-102	09/95	Auto
AP-108			BY-105			SX-109			TY-103	09/95	Auto
AW-101	08/95	Manual	BY-106			SX-110			TY-104	06/95	Auto
AW-102	05/96	Manual	BY-107			SX-111			TY-105	12/95	Auto
AW-103	05/96	Manual	BY-108			SX-112			TY-106	12/95	Auto
AW-104	01/96	Manual	BY-109			SX-113			U-101		
AW-105	06/96	Manual	BY-110	2/97	Manual	SX-114			U-102	01/96	Manual
AW-106	06/96	Manual	BY-111	2/97	Manual	SX-115			U-103	07/94	Auto
AX-101	09/95	Manual	BY-112			SY-101	07/94	Auto	U-104		
AX-102			C-101			SY-102	06/94	Manual	U-105	07/94	Auto
AX-103	09/95	Manual	C-102			SY-103	07/94	Manual	U-106	08/94	Auto
AX-104	10/96	Manual	C-103	08/94	Auto	T-101	05/95	Manual	U-107	08/94	Auto
AY-101	03/96	Manual	C-104			T-102	06/94	Auto	U-108	05/95	Manual
AY-102	01/98	Auto	C-105	05/96	Manual	T-103	07/95	Manual	U-109	07/94	Auto
AZ-101	08/96	Manual	C-106	02/96	Auto	T-104	12/95	Manual	U-110	01/96	Manual
AZ-102			C-107	04/95	Auto	T-105	07/95	Manual	U-111	01/96	Manual
B-101			C-108			T-106	07/95	Manual	U-112		
B-102	02/95	Manual	C-109			T-107	06/94	Auto	U-201		
B-103			C-110			T-108	10/95	Manual	U-202		
B-104			C-111			T-109	09/94	Manual	U-203		
B-105			C-112	03/96	Manual	T-110	05/95	Auto	U-204		
B-106			C-201			T-111	07/95	Manual			
B-107			C-202			T-112	09/95	Manual			
B-108			C-203			T-201					
B-109			C-204			T-202					
B-110						T-203					
B-111						T-204					
B-112	03/95	Manual									
Total East Area: 42						Total West Area: 65					

107 ENRAFs installed: 54 automatically entered into TMACS, 53 manually entered into CASS

TABLE A-8. TANK MONITOR AND CONTROL SYSTEM (TMACS)

May 31, 1998

Note: Indicated below are the number of tanks having at least one operating sensor (some tanks have more than one sensor: multiple sensors of the same type in a tank are not shown in the table) for example: 10 tanks in BY-Farm have at least one operating TC sensor and 3 tanks in BY-Farm have at least one operating RTD sensor.

Acceptance Testing Completed: Sensors Automatically Monitored by TMACS

	Temperatures					
EAST AREA Tank Farm	Thermocouple Tree (TC)	Resistance Thermal Device (RTD)	ENRAF Level Gauge	Pressure (b)	Hydrogen (c)	Gas Sample Flow
A-Farm (6 Tanks)	1					
AN-Farm (7 Tanks)	7			7	3	3
AP-Farm (8 Tanks)						
AW-Farm (6 Tanks)						
AX-Farm (4 Tanks)	2					
AY-Farm (2 Tanks)			1			
AZ-Farm (2 Tanks)						
B-Farm (16 Tanks)	1					
BX-Farm (12 Tanks)	11		12			
BY-Farm (12 Tanks)	10	3				
C-Farm (16 Tanks)	15	1	3	1		
TOTAL EAST AREA (91 Tanks)	47	4	16	8	3	3
WEST AREA						
S-Farm (12 Tanks)	12		4	1	3	3
SX-Farm (15 Tanks)	14		1	1	7	7
SY-Farm (3 Tanks) (a)	3		1	1	2	2
T-Farm (16 Tanks)	14	1	3		1	1
TX-Farm (18 Tanks)	13		18			
TY-Farm (6 Tanks)	6	3	6			
U-Farm (16 Tanks)	15		5	4	5	5
TOTAL WEST AREA (86 Tanks)	81	4	37	7	18	18
TOTALS (177 Tanks)	128	8	54	15	23	22

(a) Tank SY-101 has 2 gas sample flow sensors plus 2 vent flow sensors, and 2 ENRAFs.
(b) Each tank has low and high range sensors (9x2=18 sensors)
(c) Each tank has low and high range sensors (17x2=34 sensors)

APPENDIX B

DOUBLE SHELL TANK WASTE TYPE AND SPACE ALLOCATION

TABLE B-1. DOUBLE-SHELL TANK WASTE TYPE AND SPACE ALLOCATION
MAY 1998

DOUBLE-SHELL TANK INVENTORY BY WASTE TYPE		SPACE DESIGNATED FOR SPECIFIC USE	
Complexed Waste (AN-102, AN-106, AN-107, SY-101, SY-103, (AY-101 , AP-108 (DC))	4.02 Mgal	Spare Tanks (3) (1 Aging & 1 Non-Aging Waste Tank)	2.28 Mgal
		Watch List Tank Space (AN-103, AN-104, AN-105, SY-101, SY-103, AW-101)	0.70 Mgal
Concentrated Phosphate Waste (AP-102)	1.09 Mgal		
Double-Shell Slurry and Slurry Feed (AN-103, AN-104, AN-105, AP-101, AW-101, AW-106)	4.4 Mgal	Segregated Tank Space (AN-102, AN-106, AN-107, AP-102, AP-108, AY-101 AZ-101, AZ-102)	3.25 Mgal
Aging Waste (NCAW) at 5M Na	1.23 Mgal	Receiver/Operational Tank Space (2) (AN-101, AP-106, SY-102, AW-102, AW-106)	3.30 Mgal
Dilute in Aging Tanks (AZ-101, AZ-102)	0.34 Mgal		
Dilute Waste (1) (AN-101, AP-103, AP-105, AP-106, AP-107, AW-102, AW-103, AW-104, AW-105, AY-102, SY-102, AP-104)	3.24 Mgal	Total Specific Use Space (05/31/98)	9.53 Mgal
		TOTAL DOUBLE-SHELL TANK SPACE	
NCRW, PFP and DST Settled Solids (All DST's)	4.03 Mgal	24 Tanks at 1140 Kgal	27.36 Mgal
		4 Tanks at 980 Kgal	3.92 Mgal
			31.28 Mgal
Total Inventory=	18.35 Mgal	Total Available Space	31.28 Mgal
		Double-Shell Tank Inventory	18.35 Mgal
		Space Designated for Specific Use	9.53 Mgal
		Remaining Unallocated Space	3.40 Mgal

(1) Was reduced in volume by -0.00 Mgal this month (Evaporator WVR)

(2) Tank Space Reduced by Facility Generations and Saltwell Liquid pumping

(3) 241-AY-101: A minumum liquid level is set to provide extra protection against any bottom uplifting of the tank's steel liner. Because of space availablility, waste is stored in AY-102, the aging waste spare tank. In case of a leak the contents of AY-102 will be distributed to any other DST(s) having available space.

Note: Net change in total DST inventory since last month: +0.017 Mgal

WVPTOT

Table B-2. Double Shell Tank Waste Inventory for May 31, 1998

TANKS	INVENTORY	SOLIDS	TYPE	LEFT
AW-101	1124	306	DSSF	16
AW-102	120	40	DC	1020
AW-103	512	347	NCRW	628
AW-104	1119	231	DN	21
AW-105	434	280	NCRW	706
AW-106	578	228	CC	562
AY-101=	173	108	DC	807
AY-102=	833	22	DN	147
AZ-101=	847	47	NCAW	133
AZ-102=	873	104	NCAW	107
AN-101=	157	33	DN	983
AN-102=	1067	89	CC	73
AN-103=	956	410	DSS	184
AN-104=	1053	449	DSSF	87
AN-105=	1126	489	DSSF	14
AN-106=	39	17	CC	1101
AN-107=	1048	247	CC	92
SY-101=	1136	41	CC	4
SY-102=	736	88	DN/PT	404
SY-103=	744	362	CC	396
AP-101=	1115	0	DSSF	25
AP-102=	1093	0	CP	47
AP-103=	26	1	DN	1114
AP-104=	25	0	DN	1115
AP-105=	767	89	DSSF	373
AP-106=	373	0	DN	767
AP-107=	25	0	DN	1115
AP-108=	254	0	DC	886
TOTAL=	18353		TOTAL=	12927

NOTE: Solids Adjusted to Most Current Available Data
NOTE: All Volumes in Kilo-Gallons (Kgals)

TOTAL DST SPACE AVAILABLE	
NON-AGING =	27360
AGING =	3920
TOTAL=	31280

DST INVENTORY CHANGE	
04/98 TOTAL	18336
05/98 TOTAL	18353
INCREASE	17

WATCH LIST SPACE	
AW-101=	16
SY-101=	4
SY-103=	396
AN-103=	184
AN-104=	87
AN-105=	14
TOTAL=	701

SEGREGATED SPACE (DC,CC,CP,AW)	
AP-102=	47
AP-108=	886
AY-101=	807
AN-102=	73
AN-106=	1101
AN-107=	92
AZ-101=	133
AZ-102=	107
TOTAL=	3246

WASTE RECEIVER SPACE	
AN-101 (200E/DC)=	983
SY-102 (200W/DN)=	404
AP-106 (200E/DN)=	767
TOTAL=	2154

USABLE SPACE	
AP-101=	25
AP-103=	1114
AP-104=	1115
AP-105=	373
AP-107=	1115
AW-102=	1020
AW-103=	628
AW-104=	21
AW-105=	706
AW-106=	562
AY-102=	147
TOTAL=	6826
EVAP. OPERATIONS	-1140
SPARE SPACE	-2280
USABLE LEFT=	3406

USABLE SPACE CHANGE	
04/98 TOTAL SPACE	3417
05/98 TOTAL SPACE	3406
CHANGE=	-11

WASTE RECEIVER SPACE CHANGE	
04/98 TOTAL SPACE	2155
05/98 TOTAL SPACE	2154
CHANGE=	-1

Inventory Calculation by Waste Type:

COMPLEXED WASTE	
AN-102=	978 (CC)
AN-106=	22 (CC)
AN-107=	801 (CC)
SY-101=	1095 (CC)
SY-103=	382 (CC)
AY-101=	65 (DC)
AW-102=	80 (DC)
AP-108=	254 (DC)
AW-106=	350 (CC)
TOTAL DC/CC=	4027
TOTAL SOLIDS=	1132

NCRW SOLIDS (PD)	
AW-103=	347
AW-105=	280
TOTAL=	627

PFP SOLIDS (PT)	
SY-102=	88
TOTAL=	88

CONCENTRATED PHOSPHATE (CP)	
102-AP=	1093
TOTAL=	1093

DILUTE WASTE (DN)	
AP-103=	25
AP-104=	25
AP-106=	373
AP-107=	25
AN-101=	124
AW-103=	165
AW-104=	888
AW-105=	154
AY-102=	811
SY-102=	648
TOTAL DN=	3238
TOTAL SOLIDS=	287

NCAW (AGING WASTE) (@ 5M Na)	
AZ-101=	791
AZ-102=	434
TOTAL @ ~5M Na=	1225
TOTAL DN=	344
TOTAL SOLIDS=	181

DSS/DSSF	
AP-101=	1115
AP-105=	678
AN-103=	546
AN-104=	604
AN-105=	637
AW-101=	818
TOTAL DSS/DSSF=	4398
TOTAL SOLIDS=	1743

GRAND TOTALS	
NCRW SOLIDS=	627
DST SOLIDS=	3162
PFP SOLIDS=	88
AGING SOLIDS=	151
CC=	3628
DC=	399
CP=	1093
NCAW=	1569
DSS/DSSF=	4398
DILUTE=	3238
TOTAL=	18353

NOTE: Tank AW-106 (evaporator receiver) has Concentrated Complexed (CC) waste in it and will transferred to Tank 106-AN.

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Table B-2. Double Shell Tank Waste Inventory for May 31, 1998

TOTAL AVAILABLE SPACE AS OF MAY 31, 1998:			**12927 KGALS**
WATCH LIST TANK SPACE:	**TANK**	**WASTE TYPE**	**AVAILABLE SPACE**
Unusable DST Headspace - Due to Special Restrictions	AW-101	DSSF	16 KGALS
Placed on the Tanks, as Stated in the "Wyden Bill"	SY-101	CC	4 KGALS
	SY-103	CC	396 KGALS
	AN-103	DSS	184 KGALS
	AN-104	DSSF	87 KGALS
	AN-105	DSSF	14 KGALS
		TOTAL=	**701 KGALS**
		AVAILABLE TANK SPACE=	12927 KGALS
		MINUS WATCH LIST SPACE=	-701 KGALS
TOTAL AVAILABLE SPACE AFTER WATCH LIST SPACE DEDUCTIONS=			**12226 KGALS**
SEGREGATED TANK SPACE:	**TANK**	**WASTE TYPE**	**AVAILABLE SPACE**
DST Headspace Available to Store Only Specific Waste Type	AP-102	CP	47 KGALS
	AP-108	DC	886 KGALS
	AY-101	DC	807 KGALS
	AN-102	CC	73 KGALS
	AN-106	CC	1101 KGALS
	AN-107	CC	92 KGALS
	AZ-101	AW	133 KGALS
	AZ-102	AW	107 KGALS
		TOTAL=	**3246 KGALS**
		AVAILABLE SPACE AFTER WATCH LIST DEDUCTIONS=	12226 KGALS
		MINUS SEGREGATED SPACE=	-3246 KGALS
TOTAL AVAILABLE SPACE AFTER SEGREGATED SPACE DEDUCTIONS=			**8980 KGALS**
USABLE/WASTE RECEIVER TANK SPACE:	**TANK**	**WASTE TYPE**	**AVAILABLE SPACE**
DST Headspace Available to Store Facility Generated	AP-101	DSSF	25 KGALS
and Evaporator Product Waste	AP-103	DN	1114 KGALS
	AP-104	DN	1115 KGALS
	AP-105	DSSF	373 KGALS
FACILITY WASTE RECEIVER TANK	AP-106	DN	767 KGALS
	AP-107	DN	1115 KGALS
EVAPORATOR FEED TANK	AW-102	DC	1020 KGALS
	AW-103	NCRW	628 KGALS
	AW-104	DN	21 KGALS
	AW-105	NCRW	706 KGALS
EVAPORATOR RECEIVER TANK	AW-106	CC	562 KGALS
FACILITY WASTE RECEIVER TANK	AN-101	DN	983 KGALS
	AY-102	DN	147 KGALS
FACILITY WASTE RECEIVER TANK	SY-102	DN	404 KGALS
TOTAL AVAILABLE USABLE TANK SPACE=			**8980 KGALS**
EVAPORATOR OPERATIONAL TANK SPACE:			-1140 KGALS
SPARE TANK SPACE: *(DOE Order 5820.2A)*			-2280 KGALS
TOTAL TANK SPACE AVAILABLE AFTER ALL DEDUCTIONS=			**5560 KGALS**

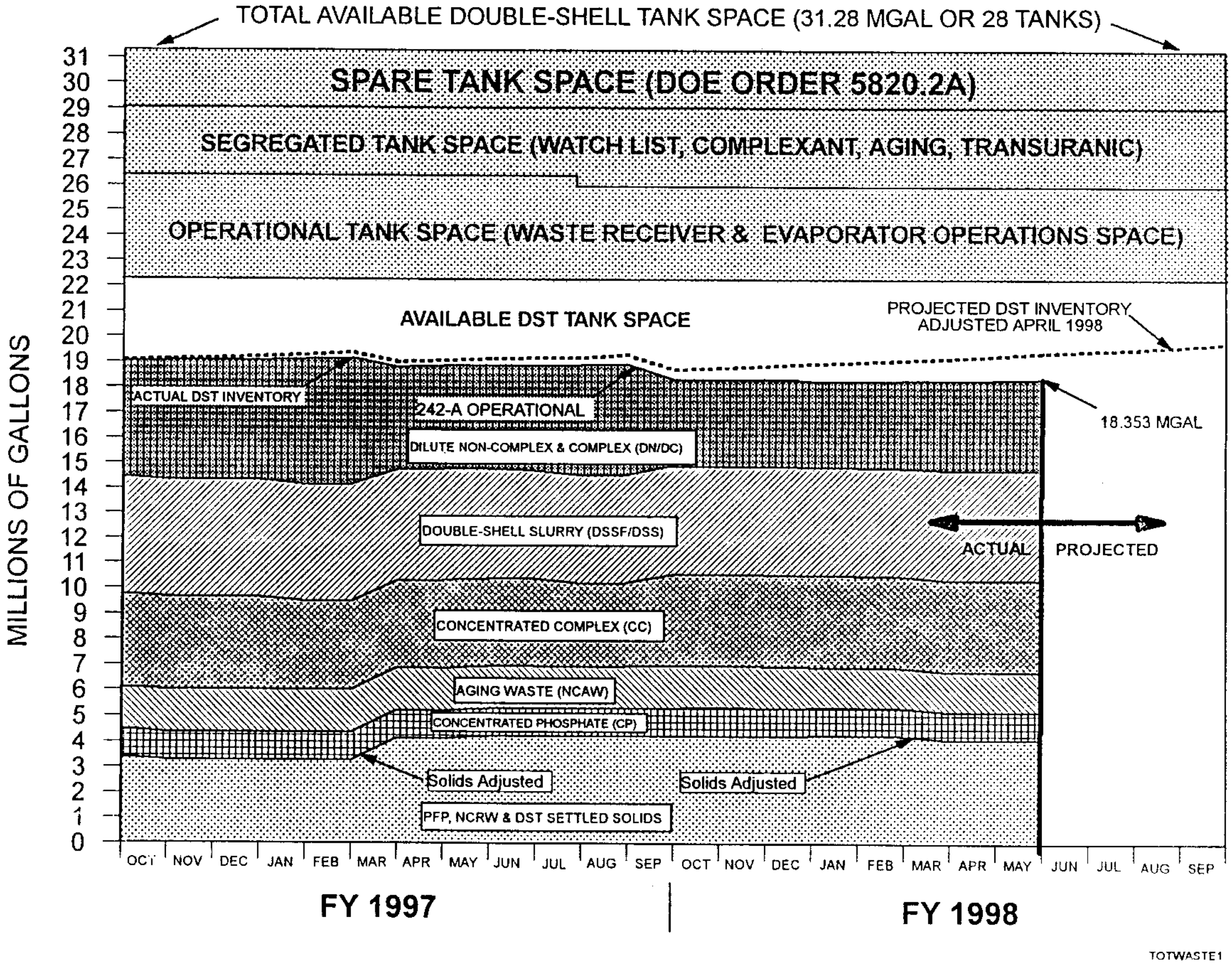

FIGURE B-1. TOTAL DOUBLE-SHELL TANK INVENTORY

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APPENDIX C

TANK AND EQUIPMENT CODE AND STATUS DEFINITIONS

C. TANK AND EQUIPMENT CODE/STATUS DEFINITIONS

May 31, 1998

1. TANK STATUS CODES

WASTE TYPE (also see definitions, section 3)

AGING	Aging Waste (Neutralized Current Acid Waste [NCAW])
CC	Complexant Concentrate Waste
CP	Concentrated Phosphate Waste
DC	Dilute Complexed Waste
DN	Dilute Non-Complexed Waste
DSS	Double-Shell Slurry
DSSF	Double-Shell Slurry Feed
NCPLX	Non-Complexed Waste
PD/PN	Plutonium-Uranium Extraction (PUREX) Neutralized Cladding Removal Waste (NCRW), transuranic waste (TRU)
PT	Plutonium Finishing Plant (PFP) TRU Solids

TANK USE (DOUBLE-SHELL TANKS ONLY)

CWHT	Concentrated Waste Holding Tank
DRCVR	Dilute Receiver Tank
EVFD	Evaporate Feed Tank
SRCVR	Slurry Receiver Tank

2. SOLID AND LIQUID VOLUME DETERMINATION METHODS

F	Food Instrument Company (FIC) Automatic Surface Level Gauge
E	ENRAF Surface Level Gauge (being installed to replace FICs)
M	Manual Tape Surface Level Gauge
P	Photo Evaluation
S	Sludge Level Measurement Device

3. DEFINITIONS

WASTE TANKS - GENERAL

Waste Tank Safety Issue

A potentially unsafe condition in the handling of waste material in underground storage tanks that requires corrective action to reduce or eliminate the unsafe condition.

Watch List Tank

An underground storage tank containing waste that requires special safety precautions because it may have a serious potential for release of high level radioactive waste because of uncontrolled increases in temperature or pressure. Special restrictions have been placed on these tanks by "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the *National Defense Authorization Act for Fiscal Year 1991*, November 5, 1990, Public Law 101-510, (also known as the Wyden Amendment).

Characterization

Characterization is understanding the Hanford tank waste chemical, physical, and radiological properties to the extent necessary to insure safe storage and interim operation, and ultimate disposition of the waste.

WASTE TYPES

Aging Waste (AGING)
High level, first cycle solvent extraction waste from the PUREX plant (NCAW)

Concentrated Complexant (CC)
Concentrated product from the evaporation of dilute complexed waste.

Concentrated Phosphate Waste (CP)
Waste originating from the decontamination of the N Reactor in the 100 N Area. Concentration of this waste produces concentrated phosphate waste.

Dilute Complexed Waste (DC)
Characterized by a high content of organic carbon including organic complexants: ethylenediaminetetra-acetic acid (EDTA), citric acid, and hydroxyethyl-ethylenediaminetriacetic acid (HEDTA), being the major complexants used. Main sources of DC waste in the DST system are saltwell liquid inventory (from SSTs).

Dilute Non-Complexed Waste (DN)
Low activity liquid waste originating from T and S Plants, the 300 and 400 Areas, PUREX facility (decladding supernatant and miscellaneous wastes), 100 N Area (sulfate waste), B Plant, saltwells, and PFP (supernate).

Double-Shell Slurry (DSS)
Waste that exceeds the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. For reporting purposes, DSS is considered a solid.

Double-Shell Slurry Feed (DSSF)
Waste concentrated just before reaching the sodium aluminate saturation boundary in the evaporator without exceeding receiver tank composition limits. This form is not as concentrated as DSS.

Non-complexed (NCPLX)
General waste term applied to all Hanford Site (NCPLX) liquors not identified as complexed.

PUREX Decladding (PD)
PUREX Neutralized Cladding Removal Waste (NCRW) is the solids portion of the PUREX plant neutralized cladding removal waste stream; received in Tank Farms as a slurry. NCRW solids are classified as transuranic (TRU) waste.

PFP TRU Solids (PT)
TRU solids fraction from PFP Plant operations.

Drainable Interstitial Liquid (DIL)
Interstitial liquid that is not held in place by capillary forces, and will therefore migrate or move by gravity. (See also Section 4)

Supernate
The liquid above the solids in waste storage tanks. (See also Section 4)

Ferrocyanide
A compound of iron and cyanide commonly expressed as FeCN. The actual formula for the ferrocyanide anion is $[Fe(CN)_6]^{-4}$.

INTERIM STABILIZATION (Single-Shell Tanks only)

Interim Stabilized (IS)

A tank which contains less than 50 Kgallons of drainable interstitial liquid and less than 5 Kgallons of supernatant liquid. If the tank was jet pumped to achieve interim stabilization, then the jet pump flow must also have been at or below 0.05 gpm before interim stabilization criteria is met.

Jet Pump

The jet pump system includes 1) a jet assembly with foot valve mounted to the base of two pipes that extend from the top of the well to near the bottom of the well casing inside the saltwell screen, 2) a centrifugal pump to supply power fluid to the down-hole jet assembly, 3) flexible or rigid transfer jumpers, 4) a flush line, and 5) a flowmeter. The jumpers contain piping, valves, and pressure and limit switches.

The centrifugal pump and jet assembly are needed to pump the interstitial liquid from the saltwell screen into the pump pit, nominally a 40-foot elevation rise. The power fluid passes through a nozzle in the jet assembly and acts to convert fluid pressure head to velocity head, thereby reducing the pressure in the jet assembly chamber. The reduction in pressure allows the interstitial liquid to enter the jet assembly chamber and mix with the power fluid. Velocity head is converted to pressure head above the nozzle, lifting power fluid, and interstitial liquid to the pump pit. Pumping rates vary from 0.05 gallons to about 4 gpm.

Saltwell Screen

The saltwell system is a 10-inch diameter saltwell casing consisting of a stainless steel saltwell screen welded to a Schedule 40 carbon steel pipe. The casing and screen are to be inserted into the 12-inch tank riser located in the pump pit. The stainless steel screen portion of the system will extend through the tank waste to near the bottom of the tank. The saltwell screen portion of the casing is an approximately 10-foot length of 300 Series, 10-inch diameter, stainless steel pipe with screen openings (slots) of 0.05 inches.

Emergency Pumping Trailer

A 45-foot tractor-type trailer is equipped to provide storage space and service facilities for emergency pumping equipment: this consists of two dedicated jet pump jumpers and two jet pumps, piping and dip tubes for each, two submersible pumps and attached piping, and a skid-mounted Weight Factor Instrument Enclosure (WFIE) with an air compressor and electronic recording instruments. The skid also contains a power control station for the pumps, pump pit leak detection, and instrumentation. A rack for over 100 feet of overground double-contained piping is also in the trailer.

INTRUSION PREVENTION (ISOLATION) Single-Shell Tanks only

Partially Interim Isolated (PI)

The administrative designation reflecting the completion of the physical effort required for Interim Isolation except for isolation of risers and piping that is required for jet pumping or for other methods of stabilization.

Interim Isolated (II)

The administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. In June 1993, Interim Isolation was replaced by Intrusion Prevention.

Intrusion Prevention (IP)

Intrusion Prevention is the administrative designation reflecting the completion of the physical effort required to minimize the addition of liquids into an inactive storage tank, process vault, sump, catch tank, or diversion box. Under no circumstances are electrical or instrumentation devices disconnected or disabled during the intrusion prevention process (with the exception of the electrical pump).

Controlled, Clean, and Stable (CCS)

Controlled, Clean, and Stable reflects the completion of several objectives: "Controlled" - provide remote monitoring for required instrumentation and implement controls required in the TWRS Authorization Basis; "Clean" - remove surface soil contamination and downpost the Tank Farms to RBA/URMA/RA radiological control status, remove abandoned equipment, and place reusuable equipment in compliant storage; and "Stable" - remove pumpable liquids from the SSTs and IMUSTs and isolate the tanks.

TANK INTEGRITY

Sound

The integrity classification of a waste storage tank for which surveillance data indicate no loss of liquid attributed to a breach of integrity.

Assumed Leaker

The integrity classification of a waste storage tank for which surveillance data indicate a loss of liquid attributed to a breach of integrity.

Assumed Re-Leaker

A condition that exists after a tank has been declared as an "assumed leaker" and then the surveillance data indicates a new loss of liquid attributed to a breach of integrity.

TANK INVESTIGATION

Intrusion

A term used to describe the infiltration of liquid into a waste tank.

SURVEILLANCE INSTRUMENTATION

Drywells

Drywells are vertical boreholes with 6-inch (internal diameter) carbon steel casings positioned radially around SSTs. These wells range between 50 and 250 feet in depth, and are monitored between the range of 50 to 150 feet. The wells are sealed when not in use. They are called drywells because they do not penetrate to the water table and are therefore usually "dry." There are 759 drywells.

Monitoring is done by gamma radiation or neutron-moisture sensors to obtain scan profiles of radiation or moisture in the soil as a function of well depth, which could be indicative of tank leakage.

Two single-shell tanks (C-105 and C-106) are currently monitored monthly by gamma radiation sensors. The remaining drywells are monitored on request by gamma radiation sensors. Monitoring by neutron-moisture sensors is done only on request.

Laterals

Laterals are horizontal drywells positioned under single-shell waste storage tanks to detect radionuclides in the soil which could be indicative of tank leakage. These drywells can be monitored by radiation detection probes. Laterals are 4-inch inside diameter steel pipes located 8 to 10 feet below the tank's concrete base. There are three laterals per tank. Laterals are located only in A and SX farms. There are currently no functioning laterals and no plan to prepare them for use.

Surface Levels

The surface level measurements in all waste storage tanks are monitored by manual or automatic conductivity probes, and recorded and transmitted or entered into the Computer Automated Surveillance System (CASS).

Automatic FIC

An automatic waste surface level measurement device is manufactured by the Food Instrument Company (FIC). The instrument consists of a conductivity electrode (plummet) connected to a calibrated steel tape, a steel tape reel housing and a controller that automatically raises and lowers the plummet to obtain a waste surface level reading. The controller can provide a digital display of the data and also transmit the reading to the CASS. Some tanks have gauges connected to CASS and others are read manually. FICs are being replaced by ENRAF detectors (see below).

ENRAF 854 ATG Level Detector

FICs and some manual tapes are in the process of being replaced by the ENRAF ATG 854 level detector. The ENRAF gauge, fabricated by ENRAF Incorporated, determines waste level by detecting variations in the weight of a displacer suspended in the tank waste. The displacer is connected to a wire wound onto a precision measuring drum. A level causes a change in the weight of the displacer which will be detected by the force transducer. Electronics within the gauge causes the servo motor to adjust the position of the displacer and compute the tank level based on the new position of the displacer drum. The gauge displays the level in decimal inches. The first few ENRAFs that received remote reading capability transmit liquid level data via analog output to the Tank Monitor and Control System (TMACS). The remaining ENRAFs and future installations will transmit digital level data to TMACS via an ENRAF Computer Interface Unit (CIU). The CIU allows fully remote communication with the gauge, minimizing tank farm entry.

Annulus

The annulus is the space between the inner and outer shells on DSTs only. Drain channels in the insulating and/or supporting concrete carry any leakage to the annulus space where conductivity probes are installed. Alarms from the annunciators are received by CASS. Continuous Air Monitoring (CAM) alarms are also located in the annulus. The annulus conductivity probes and radiation detectors are the primary means of leak detection for all DSTs.

Liquid Observation Well (LOW)

In-tank liquid observation wells are used for monitoring the interstitial liquid level (ILL) in single-shell waste storage tanks. The wells are usually constructed of fiberglass or TEFZEL-reinforced epoxy-polyester resin (TEFZEL, a trademark of E. I. du Pont de Nemours & Company). There are a few LOWs constructed of steel. LOWs are sized to extend to within 1 inch of the bottom of the waste tank, are sealed at their bottom ends and have a nominal outside diameter of 3.5 inches. Two probes are used to monitor changes in the ILL; gamma and neutron, which can indicate intrusions or leakage by increases or decreases in the ILL. There are 65 LOWs (64 are in operation) installed in SSTs that contain or are capable of containing greater than 50 Kgallons of drainable interstitial liquid, and in two DSTs only. The LOWs installed in two DSTs, (SY-102 and AW-103 tanks), are used for special, rather than routine, surveillance purposes only.

Thermocouple (TC)

A thermocouple is a thermoelectric device used to measure temperature. More than one thermocouple on a device (probe) is called a thermocouple tree. In DSTs there may be one or more thermocouple trees in risers in the primary tank. In addition, in DSTs only, there are thermocouple elements installed in the insulating concrete, the lower primary tank knuckle, the secondary tank concrete foundation, and in the outer structural concrete.

These monitor temperature gradients within the concrete walls, bottom of the tank, and the domes. In SSTs, one or more thermocouples may be installed directly in a tank, although some SSTs do not have any trees installed. A single thermocouple (probe) may be installed in a riser, or lowered down an existing riser or LOW. There are also four thermocouple laterals beneath Tank 105-A in which temperature readings are taken in 34 thermocouples.

In-tank Photographs and Videos

In-tank photographs and videos may be taken to aid in resolving in-tank measurement anomalies and determine tank integrity. Photographs and videos help determine sludge and liquid levels by visual examination.

TERMS/ACRONYMS

CASS Computer Automated Surveillance System

CCS Controlled, Clean and Stable (tank farms)

II Interim Isolated

IP — Intrusion Prevention Completed

IS — Interim Stabilized

MT/FIC/ENRAF — Manual Tape, Food Instrument Corporation, ENRAF Corporation (surface level measurement devices)

OSD — Operating Specifications Document

PI — Partial Interim Isolated

SAR — Safety Analysis Reports

SHMS — Standard Hydrogen Monitoring System

TMACS — Tank Monitor and Control System

TPA — Hanford Federal Facility Consent and Compliance Order, "Washington State Department of Ecology, U. S. Environmental Protection Agency, and U. S. Department of Energy," Fourth Amendment, 1994 (Tri-Party Agreement)

USQ — Unreviewed Safety Question

Wyden Amendment — "Safety Measures for Waste Tanks at Hanford Nuclear Reservation," Section 3137 of the National Defense Authorization Act for Fiscal Year 1991, November 5, 1990, Public Law 101-510.

4. INVENTORY AND STATUS BY TANK - VOLUME CALCULATIONS AND DEFINITIONS FOR TABLE E-6 (SINGLE-SHELL TANKS)

COLUMN HEADING	VOLUME CALCULATIONS/DEFINITIONS
Total Waste	Solids volume plus Supernatant liquid. Solids include sludge and saltcake (see definitions below)
Supernate Liquid	Drainable Liquid Remaining minus Drainable Interstitial. Supernate is the clear liquid floating on the surface of the waste. Supernate is usually derived by subtracting the solids level measurement from the liquid level measurement. In some cases, the supernatant volume includes floating solid crusts because their volume cannot be measured. In-tank photographs or videos are useful in estimating the liquid volumes; the area of solids covered and the average depth can be estimated.
Drainable Interstitial Liquid	Drainable Liquid Remaining minus Supernate. Drainable interstitial liquid is calculated based on the saltcake and sludge volumes, using average porosity values or actual data for each tank, when available. Interstitial liquid is liquid that fills the interstitial spaces of the solids waste. Drainable interstitial liquid is calculated based on the saltcake and sludge volumes in the tank. The sum of the interstitial liquid contained in saltcake and sludge is the initial volume of drainable interstitial liquid. The volume reported as Drainable Interstitial Liquid is the initial volume of drainable interstitial liquid minus interstitial liquid removed by pumping.

COLUMN HEADING	VOLUME CALCULATIONS/DEFINITIONS
Pumped This Month	Net total gallons of liquid pumped from the tank during the month. If supernate is present, pump production is first subtracted from the supernatant volume. The remainder is then subtracted from the drainable interstitial liquid volume. The total pumped volume is subtracted from drainable liquid remaining and pumpable liquid remaining. Pump production takes into account the amount of water added to the tank during the month (if any).
Total Pumped	Cumulative net total gallons of liquid pump from 1979 to date.
Drainable Liquid Remaining	Supernate plus Drainable Interstitial. (See Supernatant Liquid and Drainable Interstitial Liquid above for definitions). The total Drainable Liquid Remaining is the sum of drainable interstitial liquid and supernate minus total gallons pumped.
Pumpable Liquid Remaining	Drainable Liquid Remaining minus undrainable heel volume. (Dish bottom tanks have a "heel" where liquids can collect: flat bottom tanks do not). (See Drainable Liquid Remaining and Pumped this Month for definitions). Not all drainable interstitial liquid is pumpable. It is assumed that drainable interstitial liquid on top of the undrainable heel in sludge or saltcake, is not jet pumpable. Therefore, pumpable interstitial liquid is the initial volume of drainable interstitial liquid minus the amount of interstitial liquid on top of the heel. The volume shown as Pumpable Liquid Remaining is the sum of pumpable interstitial liquid and supernate minus total gallons pumped.
Sludge	Solids formed during sodium hydroxide additions to waste. Sludge usually was in the form of suspended solids when the waste was originally received in the tank from the waste generator. In-tank photographs or videos may be used to estimate the volume.
Saltcake	Results from crystallization and precipitation after concentration of liquid waste, usually in an evaporator. If saltcake is layered over sludge, it is only possible to measure total solids volume. In-tank photographs or videos may be used to estimate the saltcake volume.
Solids Volume Update	Indicates the latest update of any change in the solids volume.
Solids Update Source - See Footnote	Indicates the source or basis of the latest solids volume update.
Last In-tank Photo	Date of last in-tank photographs taken.
Last In-tank Video	Date of last in-tank video taken.
See Footnotes for These Changes	Indicates any change made the previous month. A footnote explanation for the change follows the Inventory and Status by Tank section (Table E-6).

APPENDIX D

TANK FARM CONFIGURATION, STATUS, AND FACILITY CHARTS

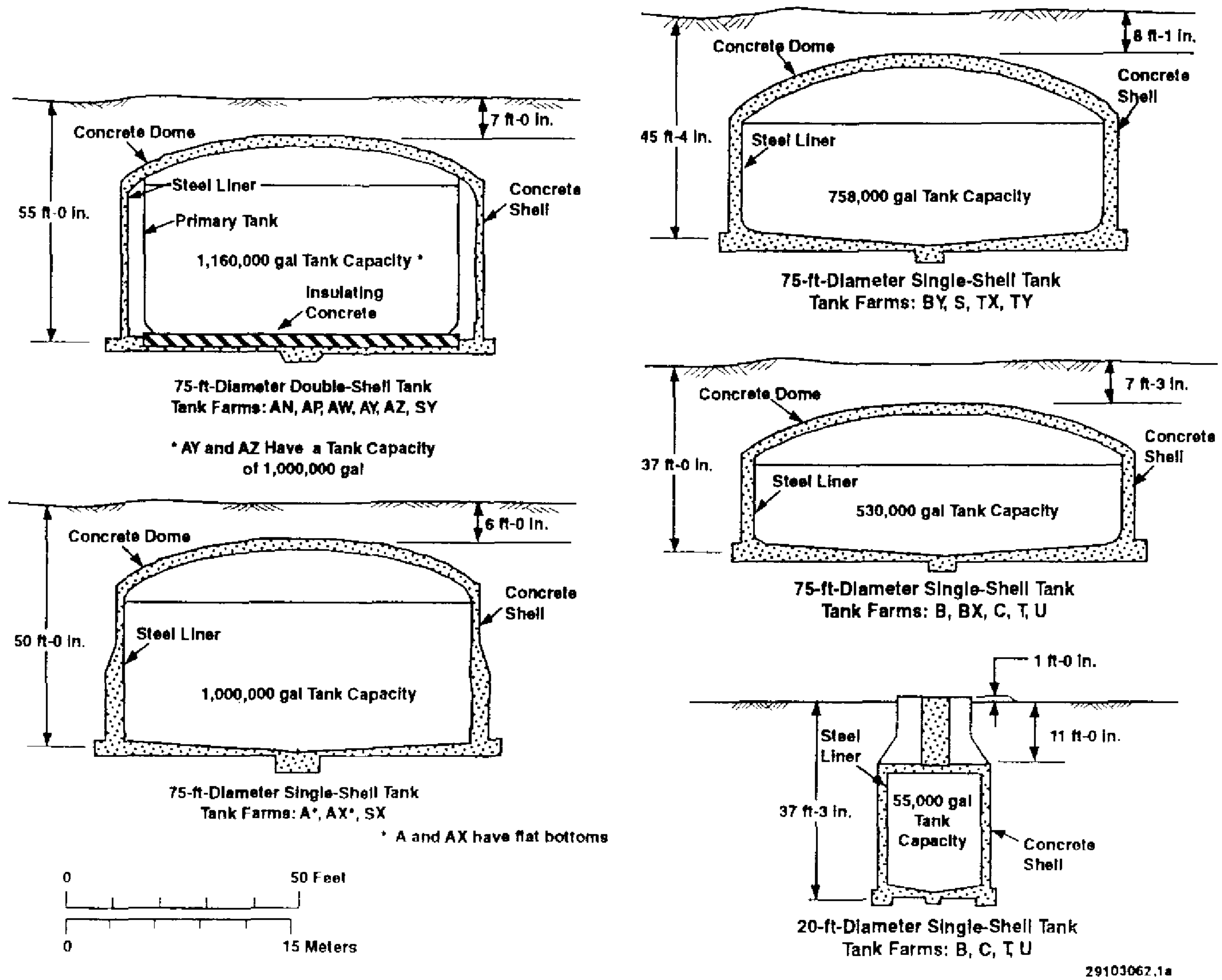

FIGURE D-1. HIGH-LEVEL WASTE TANK CONFIGURATION

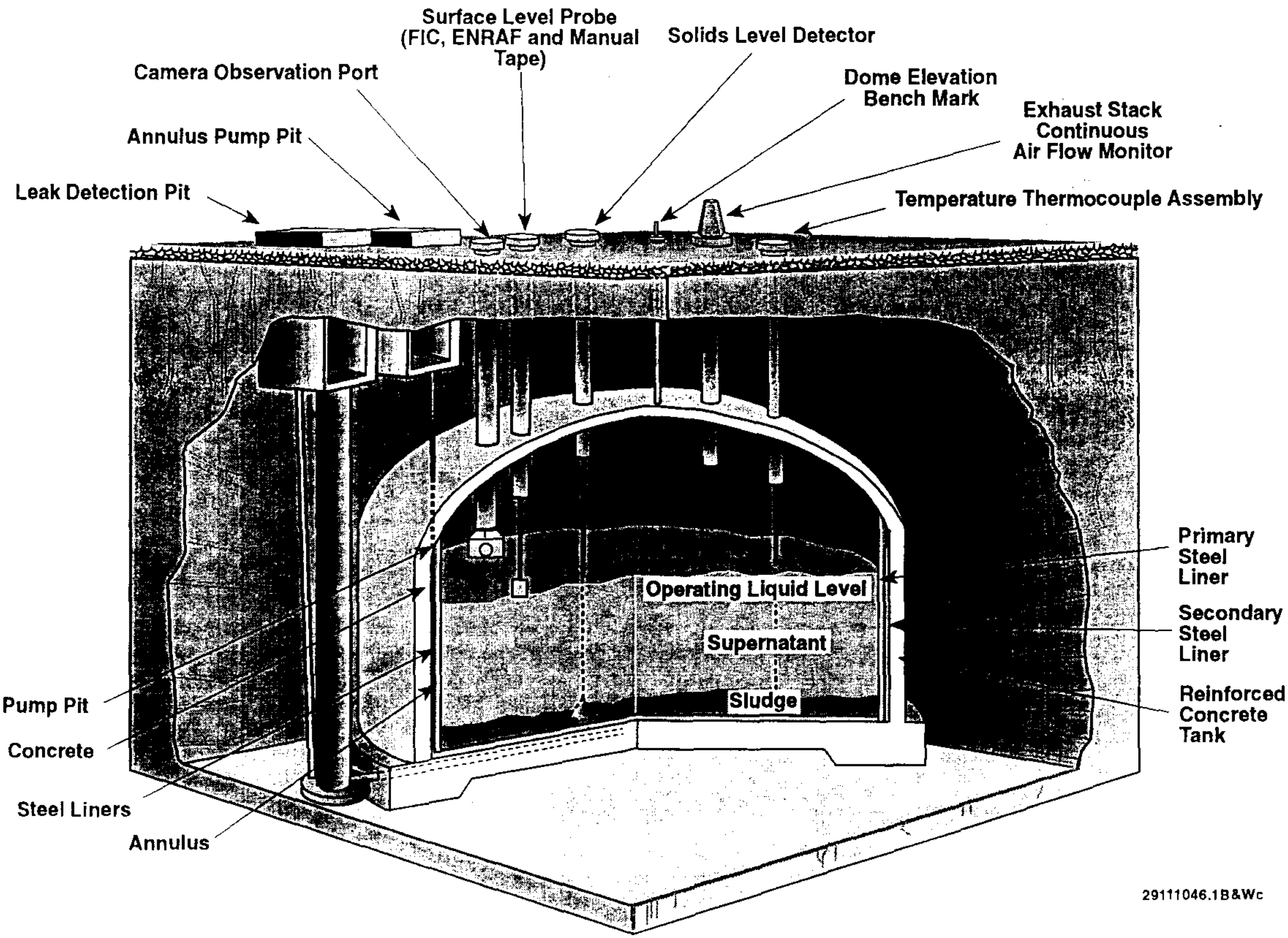

FIGURE D-2. DOUBLE-SHELL TANK INSTRUMENTATION CONFIGURATION

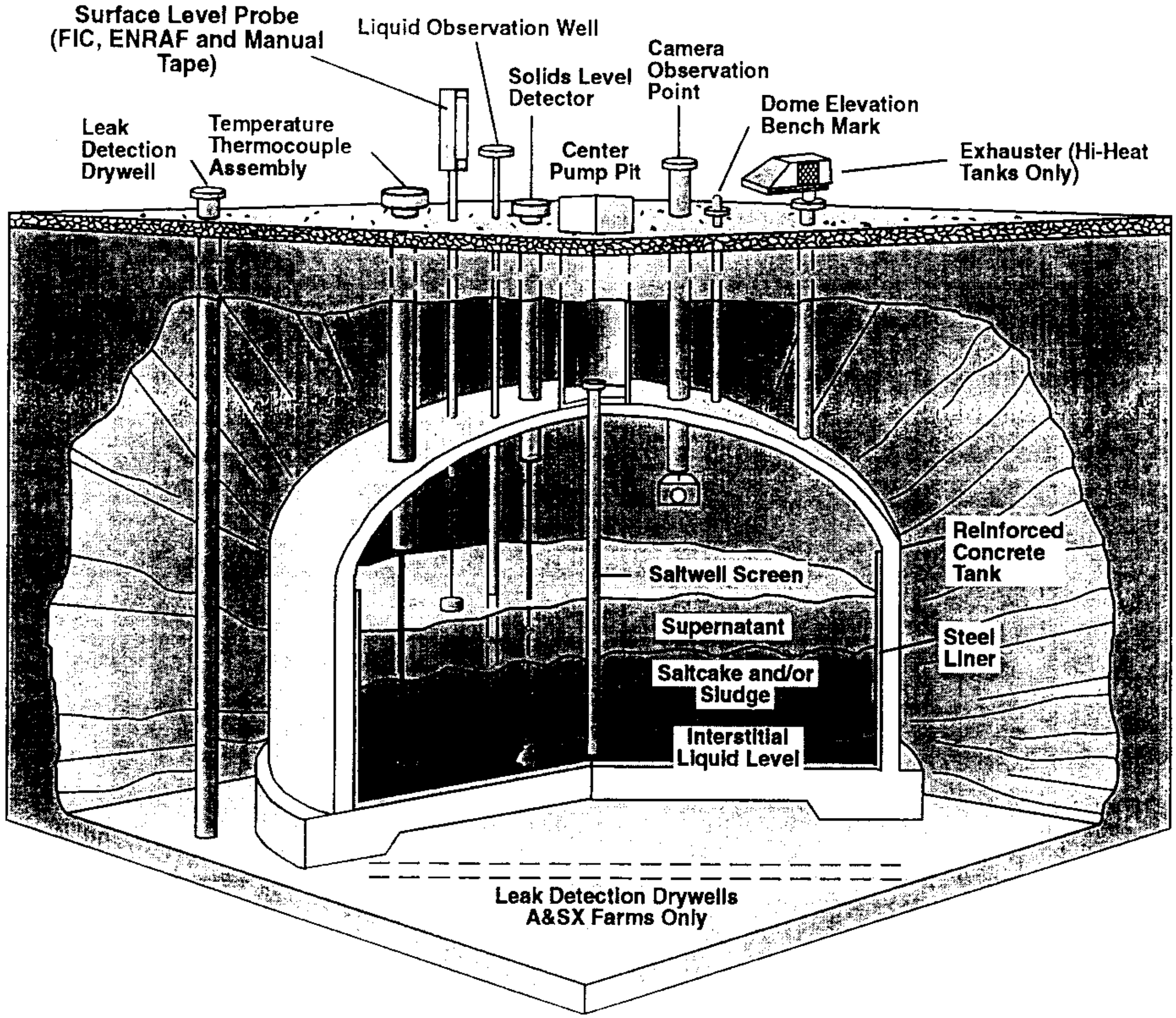

FIGURE D-3 SINGLE-SHELL TANK INSTRUMENTATION CONFIGURATION

THE HANFORD TANK FARM FACILITY CHARTS (colored foldouts)

ARE ONLY BEING INCLUDED IN THIS REPORT ON A QUARTERLY BASIS

(i. e., months ending March 31, June 30, September 30, December 31)

NOTE: COPIES OF THE FACILITY CHARTS CAN BE OBTAINED FROM

DENNIS BRUNSON, MULTI-MEDIA SERVICES,

375-6820, K1-03

ALMOST ANY SIZE IS AVAILABLE, AND CAN BE LAMINATED.

TCPN required

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APPENDIX E

MONTHLY SUMMARY
TANK USE SUMMARY
PUMPING RECORD, LIQUID STATUS AND PUMPABLE LIQUID REMAINING IN TANK FARMS
INVENTORY SUMMARY BY TANK FARM
INVENTORY AND STATUS BY TANK

TABLE E-1. MONTHLY SUMMARY
TANK STATUS
May 31, 1998

	200 EAST AREA	200 WEST AREA	TOTAL	
IN SERVICE	25	03	28	(1)
OUT OF SERVICE	66	83	149	
SOUND	59	51	110	
ASSUMED LEAKER	32	35	67	
INTERIM STABILIZED	60	59	119	(2)
ISOLATED				
PARTIAL INTERIM	11	30	41	
INTRUSION PREVENTION COMPLETE	55	53	108	
CONTROLLED, CLEAN, AND STABLE	12	24	36	

WASTE VOLUMES (Kgallons)

		200 EAST AREA	200 WEST AREA	TOTAL	SST TANKS	DST TANKS	TOTAL
SUPERNATANT							
AGING	Aging waste	1569	0	1569	0	1569	1569
CC	Complexant concentrate waste	2154	1473	3627	3	3624	3627
CP	Concentrated phosphate waste	1093	0	1093	0	1093	1093
DC	Dilute complexed waste	400	1	401	2	399	401
DN	Dilute non-complexed waste	2271	0	2271	0	2271	2271
DN/PD	Dilute non-complex/PUREX TRU solid	344	0	344	0	344	344
DN/PT	Dilute non-complex/PFP TRU solids	0	648	648	0	648	648
NCPLX	Non-complexed waste	207	289	496	496	0	496
DSSF	Double-shell slurry feed	4407	48	4455	57	4398	4455
TOTAL SUPERNATANT		12445	2459	14904	558	14346	14904
SOLIDS							
Double-shell slurry		410	0	410	0	410	410
Sludge		9147	6236	15383	11865	3518	15383
Saltcake		6265	16740	23005	22926	79	23005
TOTAL SOLIDS		15822	22976	38798	34791	4007	38798
TOTAL WASTE		28267	25435	53702	35349	18353	53702
AVAILABLE SPACE IN TANKS		12123	804	12927	0	12927	12927
DRAINABLE INTERSTITIAL		2229	4650	6879	2229	4650	6879
DRAINABLE LIQUID REMAINING		14675	7096	21771	7146	14625	21771

(1) Includes six double-shell tanks on Hydrogen Watch List not currently allowed to receive waste, AN-103, AN-104, AN-105, AW-101, SY-101, and SY-103.

(2) Includes one tank (B-202) which does not meet current established supernatant and interstitial liquid stabilization criteria.

TABLE E-2. TANK USE SUMMARY

May 31, 1998

				ISOLATED TANKS				
TANK *FARMS*	*TANKS RECEIVING* *WASTE TRANSERS*	*SOUND*	*ASSUMED* *LEAKER*	*PARTIAL* *INTERIM*	*INTRUSION* *PREVENTION* *COMPLETED*	*CONTROLLED* *CLEAN, AND* *STABLE*	*INTERIM* *TABILIZED* *TANKS*	
EAST								
A	0	3	3	2	4	0	5	
AN	7 (1)	7	0	0	0		0	
AP	8	8	0	0	0		0	
AW	6 (1)	6	0	0	0		0	
AX	0	2	2	1	3		3	
AY	2	2	0	0	0		0	
AZ	2	2	0	0	0		0	
B	0	6	10	0	16		16	(2)
BX	0	7	5	0	12	12	12	
BY	0	7	5	5	7		10	
C	0	9	7	3	13		14	
Total	25	59	32	11	55	12	60	
WEST								
S	0	11	1	10	2		4	
SX	0	5	10	6	9		9	
SY	3 (1)	3	0	0	0		0	
T	0	9	7	5	11		14	
TX	0	10	8	0	18	18	18	
TY	0	1	5	0	6	6	6	
U	0	12	4	9	7		8	
Total	3	51	35	30	53	24	59	
TOTAL	28	110	67	41	108	36	119	

(1) Six Double-Shell Tanks on the Hydrogen Tank Watch List are not currently receiving waste transfers (AN-103, 104, 105, AW-101, SY-101 and 103).

(2) Includes tank B-202 which no longer meets established supernatant interstitial liquid stabilization criteria.

TABLE E-3. PUMPING RECORD, LIQUID STATUS AND PUMPABLE LIQUID REMAINING IN TANK FARMS

May 31, 1998

Waste Volumes (Kgallons)

TANK FARMS	PUMPED THIS MONTH	PUMPED FY TO DATE	CUMULATIVE TOTAL PUMPED 1979 TO DATE	SUPERNATANT LIQUID	DRAINABLE INTERSTITIAL REMAINING	DRAINABLE LIQUID REMAINING	PUMPABLE LIQUID REMAINING
EAST							
A	0.0	0.0	150.5	9	492	501	441
AN	N/A	N/A	N/A	3712	127	3839	N/A
AP	N/A	N/A	N/A	3588	3	3591	N/A
AW	N/A	N/A	N/A	2480	139	2619	N/A
AX	0.0	0.0	13.0	3	409	412	344
AY	N/A	N/A	N/A	876	5	881	N/A
AZ	N/A	N/A	N/A	1569	5	1574	N/A
B	0.0	0.0	0.00	15	164	179	80
BX	N/A	0.0	200.2	21	107	129	N/A
BY	0.0	0.0	1567.8	0	588	588	431
C	0.0	0.0	103.0	172	190	362	272
Total	0.0	0.0	2034.5	12445	2229	14675	1568
WEST							
S	0.0	0.0	853.6	71	1303	1361	1138
SX	0.0	0.8	114.0	63	1506	1569	1444
SY	N/A	N/A	N/A	2121	0	2121	N/A
T	0.0	0.0	183.4	28	203	231	167
TX	N/A	0.0	1205.7	5	250	255	N/A
TY	N/A	0.0	29.9	3	31	34	N/A
U	0.0	0.0	0.0	168	1357	1525	1377
Total	0.0	0.8	2386.6	2459	4650	7096	4126
TOTAL	0.0	0.8	4421.1	14904	6879 (1)	21771	5694 (1)

(1) Volume based on 21% (sludge waste) and 50% (saltcake waste) liquid in solid (porosity) value, per WHC-SD-W236A-ES-012, Rev .1, dated May 21, 1996, a re-evaluation of the non-stabilized tanks.

N/A = Not applicable for Double-Shell Tank Farms, and Single-Shell Tank Farms which have been declared Controlled, Clean and Stable (BX, TX, TY).

TABLE E-4. INVENTORY SUMMARY BY TANK FARM

May 31, 1998

TANK FARM	TOTAL WASTE	AVAIL SPACE	SUPERNATANT LIQUID VOLUMES (Kgallons) AGING	CC	CP	DC	DN	DN/PD	DN/PT	DSSF	NCPLX	TOTAL	SOLIDS VOLUME DSS	SLUDGE	SALT CAKE	TOTAL
EAST																
A	1537	0	0	0	0	0	0	0	0	9	0	9	0	556	972	1528
AN	5446	2534	0	1801	0	0	124	0	0	1787	0	3712	410	1324	0	1734
AP	3678	5442	0	0	1093	254	448	0	0	1793	0	3588	0	90	0	90
AW	3887	2953	0	350	0	80	888	344	0	818	0	2480	0	1332	75	1407
AX	906	0	0	3	0	0	0	0	0	0	0	3	0	19	884	903
AY	1006	954	0	0	0	65	811	0	0	0	0	876	0	130	0	130
AZ	1720	240	1569	0	0	0	0	0	0	0	0	1569	0	151	0	151
B	2057	0	0	0	0	0	0	0	0	0	15	15	0	1697	345	2042
BX	1493	0	0	0	0	0	0	0	0	0	21	21	0	1351	121	1472
BY	4561	0	0	0	0	0	0	0	0	0	0	0	0	693	3868	4561
C	1976	0	0	0	0	1	0	0	0	0	171	172	0	1804	0	1804
Total	28267	12123	1569	2154	1093	400	2271	344	0	4407	207	12445	410	9147	6265	15822
WEST																
S	5300	0	0	0	0	0	0	0	0	17	54	71	0	1166	4063	5229
SX	4419	0	0	0	0	1	0	0	0	0	62	63	0	1254	3102	4356
SY	2616	804	0	1473	0	0	0	0	648	0	0	2121	0	491	4	495
T	1903	0	0	0	0	0	0	0	0	0	28	28	0	1875	0	1875
TX	7009	0	0	0	0	0	0	0	0	0	5	5	0	241	6763	7004
TY	638	0	0	0	0	0	0	0	0	0	3	3	0	571	64	635
U	3550	0	0	0	0	0	0	0	0	31	137	168	0	638	2744	3382
Total	25435	804	0	1473	0	1	0	0	648	48	289	2459	0	6236	16740	22976
TOTAL	53702	12927	1569	3627	1093	401	2271	344	648	4455	496	14904	410	15383	23005	38798

TABLE E-5. INVENTORY AND STATUS BY TANK - DOUBLE SHELL TANKS

May 31, 1998

TANK STATUS							LIQUID VOLUME				SOLIDS VOLUME			VOLUME DETERMINATION			PHOTOS/VIDEOS		
TANK	WAST MATL	TANK INTEGRITY	TANK USE	EQUIVA-LENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL. SPACE (Kgal)	SUPER-NATANT LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	DSS (Kgal)	SLUDGE	SALT CAKE	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTE FOR THESE CHANGES
AN TANK FARM STATUS																			
AN-101	DN	SOUND	DRCVR	57.1	157	983	124	0	124	124	0	33	0	FM	S	04/30/96	0/ 0/ 0		
AN-102	CC	SOUND	CWHT	388.0	1067	73	978	3	981	978	0	89	0	FM	S	08/22/89	0/ 0/ 0		
AN-103	DSS	SOUND	CWHT	347.6	956	184	546	0	546	546	410	0	0	FM	S	03/31/97	10/29/87		
AN-104	DSSF	SOUND	CWHT	382.9	1053	87	604	48	652	630	0	449	0	FM	S	03/31/97	08/19/88		
AN-105	DSSF	SOUND	CWHT	409.5	1126	14	637	53	690	668	0	489	0	FM	S	03/31/97	01/26/88		
AN-106	CC	SOUND	CWHT	14.2	39	1101	22	0	22	22	0	17	0	FM	S	08/22/89	0/ 0/ 0		
AN-107	CC	SOUND	CWHT	381.1	1048	92	801	23	824	802	0	247	0	FM	S	08/22/89	09/01/88		
7 DOUBLE-SHELL TANKS				TOTALS	5446	2534	3712	127	3839	3770	410	1324	0						
AP TANK FARM STATUS																			
AP-101	DSSF	SOUND	DRCVR	405.5	1115	25	1115	0	1115	1115	0	0	0	FM	S	05/01/89	0/ 0/ 0		
AP-102	CP	SOUND	GRTFD	397.5	1093	47	1093	0	1093	1093	0	0	0	FM	S	07/11/89	0/ 0/ 0		
AP-103	DN	SOUND	DRCVR	9.5	26	1114	25	0	25	25	0	1	0	FM	S	05/31/96	0/ 0/ 0		
AP-104	DN	SOUND	GRTFD	9.1	25	1115	25	0	25	25	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-105	DSSF	SOUND	CWHT	278.9	767	373	678	3	681	678	0	89	0	FM	S	03/31/98	0/ 0/ 0	09/27/95	(a)
AP-106	DN	SOUND	DRCVR	135.6	373	767	373	0	373	373	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-107	DN	SOUND	DRCVR	9.1	25	1115	25	0	25	25	0	0	0	FM	S	10/13/88	0/ 0/ 0		
AP-108	DC	SOUND	DRCVR	92.4	254	886	254	0	254	254	0	0	0	FM	S	10/13/88	0/ 0/ 0		
8 DOUBLE-SHELL TANKS				TOTALS	3678	5442	3588	3	3591	3588	0	90	0						
AW TANK FARM STATUS																			
AW-101	DSSF	SOUND	CWHT	408.7	1124	16	818	30	848	826	0	306	0	FM	S	03/31/97	03/17/88		
AW-102	DC	SOUND	EVFD	43.6	120	1020	80	0	80	80	0	40	0	FM	S	08/31/97	02/02/83		
AW-103	DN/PD	SOUND	DRCVR	186.2	512	628	165	35	200	178	0	347	0	FM	S	03/31/98	0/ 0/ 0		(a)
AW-104	DN	SOUND	DRCVR	406.9	1119	21	888	30	918	896	0	156	75	FM	S	03/31/98	02/02/83		(a)
AW-105	DN/PD	SOUND	DRCVR	157.8	434	706	179	24	203	181	0	255	0	FM	S	03/31/98	0/ 0/ 0		(a)
AW-106	CC	SOUND	SRCVR	210.2	578	562	350	20	370	350	0	228	0	FM	S	08/31/97	02/02/83		
6 DOUBLE-SHELL TANKS				TOTALS	3887	2953	2480	139	2619	2511	0	1332	75						

TABLE E-5. INVENTORY AND STATUS BY TANK - DOUBLE SHELL TANKS

May 31, 1998

TANK STATUS							LIQUID VOLUME				SOLIDS VOLUME			VOLUME DETERMINATION			PHOTOS/VIDEOS		
TANK	WAST MATL	TANK INTEGRITY	TANK USE	EQUIVALENT WASTE INCHES	TOTAL WASTE (Kgal)	AVAIL. SPACE (Kgal)	SUPERNATANT LIQUID (Kgal)	DRAINABLE INTERSTIT. (Kgal)	DRAINABLE LIQUID REMAIN (Kgal)	PUMPABLE LIQUID REMAIN (Kgal)	DSS (Kgal)	SLUDGE	SALT CAKE	LIQUID VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTE FOR THESE CHANGES
AY TANK FARM STATUS																			
AY-101	DC	SOUND	DRCVR	62.9	173	807	65	5	70	65	0	108	0	FM	S	10/31/97	12/28/82		
AY-102	DN	SOUND	DRCVR	302.9	833	147	811	0	811	811	0	22	0	FM	S	10/31/97	04/28/81		
2 DOUBLE-SHELL TANKS				TOTALS	1006	954	876	5	881	876	0	130	0						
AZ TANK FARM STATUS																			
AZ-101	AGING	SOUND	CWHT	308.0	847	133	800	0	800	800	0	47	0	FM	S	10/31/97	08/18/83		
AZ-102	AGING	SOUND	DRCVR	317.5	873	107	769	5	774	769	0	104	0	FM	S	10/31/97	10/24/84		
2 DOUBLE-SHELL TANKS				TOTALS	1720	240	1569	5	1574	1569	0	151	0						
SY TANK FARM STATUS																			
SY-101	CC	SOUND	CWHT	413.1	1136	4	1095	0	1095	1095	0	41	0	FM	S	05/31/96	04/12/89		
SY-102	DN/PT	SOUND	DRCVR	267.6	736	404	648	0	648	648	0	88	0	FM	S	03/31/98	04/29/81		(a)
SY-103	CC	SOUND	CWHT	270.5	744	396	378	0	378	378	0	362	4	FM	S	06/30/96	10/01/85		
3 DOUBLE-SHELL TANKS				TOTALS	2616	804	2121	0	2121	2121	0	491	4						
GRAND TOTAL					18353	12927	14346	279	14625	14435	410	3518	79						

Note: +/- 1 Kgal differences are the result of computer rounding

Tank Farms	Available Space Calculations Used in This Document (Most Conservative)	IOSR WHC-SD-WM-OSR-16 (AN, AP, AW, SY) WHC-T-151-00009 (Aging Waste)	
AN, AP, AW, SY	1,140,000 gal (414.5 in.)	1,144,000 gal (416 in.)(AN, AP, SY)	1,127,500 (410 in.)(AW-Farm)
AY, AZ (Aging Waste)	980,000 gal (356.4 in.)	1,000,000 gal (363.6 in.)(AY, AZ)	

NOTE: Tanks AN-102, AN-107, AY-101, AY-102, AP-103, AP-104, AP-107 - These tanks currently contain waste that is outside of the current corrosion control specification. An alternate strategy of corrosion control (monitor using corrosion probes; adjust chemistry as required for control) is being proposed but has not been fully evaluated. Note that the supernate in AY-102 is within the corrosion specifications, however, the sludge layer is outside the specifications.

(a) Solids levels in tanks AP-105, AW-103, AW-104, AW-105, and SY-102 were adjusted based on document HNF-SD-WM-TI-806, "Safety Control Optimization by Performance Evaluation-Analysis Tool (SCOPE-AT) Pedigree Database for Hanford Tanks," which will soon be released.

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

May 31, 1998

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION			PHOTOS/VIDEOS		
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
								A TANK FARM STATUS										
A-101	DSSF	SOUND	/PI	953	0	464	0.0	0.0	464	441	3	950	P	F	11/21/80	08/21/85		
A-102	DSSF	SOUND	IS/PI	41	4	2	0.0	39.5	6	0	15	22	P	FP	07/27/89	07/20/89		
A-103	DSSF	ASMD LKR	IS/IP	371	5	15	0.0	111.0	20	0	366	0	-	FP	06/03/88	12/28/88		
A-104	NCPLX	ASMD LKR	IS/IP	28	0	0	0.0	0.0	0	0	28	0	M	PS	01/27/78	06/25/86		
A-105	NCPLX	ASMD LKR	IS/IP	19	0	4	0.0	0.0	4	0	19	0	P	MP	08/23/79	08/20/86		
A-106	CP	SOUND	IS/IP	125	0	7	0.0	0.0	7	0	125	0	P	M	09/07/82	08/19/86		
6 SINGLE-SHELL TANKS			TOTALS	1537	9	492	0.0	150.5	501	441	556	972						
								AX TANK FARM STATUS										
AX-101	DSSF	SOUND	/PI	748	0	359	0.0	0.0	359	338	3	745	P	F	07/16/97	08/18/87		
AX-102	CC	ASMD LKR	IS/IP	39	3	14	0.0	13.0	17	3	7	29	F	S	09/06/88	06/05/89		
AX-103	CC	SOUND	IS/IP	112	0	36	0.0	0.0	36	3	2	110	F	S	08/19/87	08/13/87		
AX-104	NCPLX	ASMD LKR	IS/IP	7	0	0	0.0	0.0	0	0	7	0	P	M	04/28/82	08/18/87		
4 SINGLE-SHELL TANKS			TOTALS:	906	3	409	0.0	13.0	412	344	19	884						
								B TANK FARM STATUS										
B-101	NCPLX	ASMD LKR	IS/IP	113	0	6	0.0	0.0	6	0	113	0	P	F	04/28/82	05/19/83		
B-102	NCPLX	SOUND	IS/IP	32	4	0	0.0	0.0	4	0	18	10	P	F	08/22/85	08/22/85		
B-103	NCPLX	ASMD LKR	IS/IP	59	0	0	0.0	0.0	0	0	59	0	F	F	02/28/85	10/13/88		
B-104	NCPLX	SOUND	IS/IP	371	1	46	0.0	0.0	47	40	301	69	M	M	06/30/85	10/13/88		
B-105	NCPLX	ASMD LKR	IS/IP	306	0	23	0.0	0.0	23	0	40	266	P	MP	12/27/84	05/19/88		
B-106	NCPLX	SOUND	IS/IP	117	1	6	0.0	0.0	7	0	116	0	F	F	03/31/85	02/28/85		
B-107	NCPLX	ASMD LKR	IS/IP	165	1	12	0.0	0.0	13	7	164	0	M	M	03/31/85	02/28/85		
B-108	NCPLX	SOUND	IS/IP	94	0	4	0.0	0.0	4	0	94	0	F	F	05/31/85	05/10/85		
B-109	NCPLX	SOUND	IS/IP	127	0	8	0.0	0.0	8	0	127	0	M	M	04/08/85	04/02/85		
B-110	NCPLX	ASMD LKR	IS/IP	246	1	22	0.0	0.0	23	17	245	0	MP	MP	02/28/85	03/17/88		
B-111	NCPLX	ASMD LKR	IS/IP	237	1	21	0.0	0.0	22	16	236	0	F	F	06/28/85	06/26/85		
B-112	NCPLX	ASMD LKR	IS/IP	33	3	0	0.0	0.0	3	0	30	0	F	F	05/31/85	05/29/85		
B-201	NCPLX	ASMD LKR	IS/IP	29	1	3	0.0	0.0	4	0	28	0	M	M	04/28/82	11/12/86	06/23/95	
B-202	NCPLX	SOUND	IS/IP	27	0	3	0.0	0.0	3	0	27	0	P	M	05/31/85	05/29/85	06/15/95	
B-203	NCPLX	ASMD LKR	IS/IP	51	1	5	0.0	0.0	6	0	50	0	PM	PM	05/31/84	11/13/86		
B-204	NCPLX	ASMD LKR	IS/IP	50	1	5	0.0	0.0	6	0	49	0	P	M	05/31/84	10/22/87		
16 SINGLE-SHELL TANKS			TOTALS	2057	15	164	0.0	0.0	179	80	1697	345						

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

May 31, 1998

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION			PHOTOS/VIDEOS		
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
								BX TANK FARM STATUS										
BX-101	NCPLX	ASMD LKR	IS/IP/CCS	43	1	0	0.0	0.0	1	0	42	0	P	M	04/28/82	11/24/88	11/10/94	
BX-102	NCPLX	ASMD LKR	IS/IP/CCS	96	0	4	0.0	0.0	4	0	96	0	P	M	04/28/82	09/18/85		
BX-103	NCPLX	SOUND	IS/IP/CCS	68	6	0	0.0	0.0	6	0	62	0	P	F	11/29/83	10/31/86	10/27/94	
BX-104	NCPLX	SOUND	IS/IP/CCS	99	3	30	0.0	17.4	33	27	96	0	F	F	09/22/89	09/21/89		
BX-105	NCPLX	SOUND	IS/IP/CCS	51	5	6	0.0	15.0	11	4	43	3	F	S	09/03/86	10/23/86		
BX-106	NCPLX	SOUND	IS/IP/CCS	38	0	0	0.0	14.0	0	0	38	0	MP	PS	08/01/95	05/19/88	07/17/95	
BX-107	NCPLX	SOUND	IS/IP/CCS	345	1	29	0.0	23.1	30	23	344	0	MP	P	09/18/90	09/11/90		
BX-108	NCPLX	ASMD LKR	IS/IP/CCS	26	0	1	0.0	0.0	1	0	26	0	M	PS	07/31/79	05/05/94		
BX-109	NCPLX	SOUND	IS/IP/CCS	193	0	13	0.0	8.2	13	8	193	0	FP	P	09/17/90	09/11/90		
BX-110	NCPLX	ASMD LKR	IS/IP/CCS	207	3	16	0.0	1.5	19	13	195	9	MP	M	10/31/94	07/15/94	10/13/94	
BX-111	NCPLX	ASMD LKR	IS/IP/CCS	162	1	1	0.0	116.9	3	1	52	109	M	M	04/06/95	05/19/94	02/28/95	
BX-112	NCPLX	SOUND	IS/IP/CCS	165	1	7	0.0	4.1	8	2	164	0	FP	P	09/17/90	09/11/90		
12 SINGLE-SHELL TANKS			TOTALS:	1493	21	107	0.0	200.2	129	78	1351	121						
								BY TANK FARM STATUS										
BY-101	NCPLX	SOUND	IS/IP	387	0	5	0.0	35.8	5	0	109	278	P	M	05/30/84	09/19/89		
BY-102	NCPLX	SOUND	IS/PI	277	0	11	0.0	159.0	11	0	0	277	MP	M	05/01/95	09/11/87	04/11/95	
BY-103	NCPLX	ASMD LKR	IS/PI	414	0	38	0.0	95.9	38	32	5	409	MP	M	11/25/97	09/07/89	02/24/97	
BY-104	NCPLX	SOUND	IS/IP	406	0	18	0.0	329.5	18	0	40	366	P	M	04/28/82	04/27/83		
BY-105	NCPLX	ASMD LKR	/PI	503	0	228	0.0	0.0	228	216	44	459	P	MP	07/16/97	07/01/86		
BY-106	NCPLX	ASMD LKR	/PI	642	0	200	0.0	63.7	200	163	95	547	P	MP	04/28/82	11/04/82		
BY-107	NCPLX	ASMD LKR	IS/IP	266	0	25	0.0	56.4	25	0	60	206	P	MP	04/28/82	10/15/86		
BY-108	NCPLX	ASMD LKR	IS/IP	228	0	9	0.0	27.5	9	0	154	74	MP	M	04/28/82	10/15/86		
BY-109	NCPLX	SOUND	IS/PI	290	0	37	0.0	157.1	37	20	57	233	F	PS	07/08/87	06/18/97		
BY-110	NCPLX	SOUND	IS/IP	398	0	9	0.0	213.3	9	0	103	295	M	S	09/10/79	07/26/84		
BY-111	NCPLX	SOUND	IS/IP	459	0	0	0.0	313.2	0	0	21	438	P	M	04/28/82	10/31/86		
BY-112	NCPLX	SOUND	IS/IP	291	0	8	0.0	116.4	8	0	5	286	P	M	04/28/82	04/14/88		
12 SINGLE-SHELL TANKS			TOTALS:	4561	0	588	0.0	1567.8	588	431	693	3868						

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

May 31, 1998

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPERNATE (Kgal)	DRAINABLE INTERSTIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAINABLE LIQUID REMAIN (Kgal)	PUMPABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
								C TANK FARM STATUS										
C-101	NCPLX	ASMD LKR	IS/IP	88	0	3	0.0	0.0	3	0	88	0	M	M	11/29/83	11/17/87		
C-102	DC	SOUND	IS/IP	316	0	30	0.0	46.7	30	17	316	0	F	FP	09/30/95	05/18/76	08/24/95	
C-103	NCPLX	SOUND	/PI	195	133	2	0.0	0.0	135	133	62	0	F	S	10/20/90	07/28/87		
C-104	CC	SOUND	IS/IP	295	0	11	0.0	0.0	11	5	295	0	FP	P	09/22/89	07/25/90		
C-105	NCPLX	SOUND	IS/PI	134	2	30	0.0	0.0	32	9	132	0	F	S	10/31/95	08/05/94	08/30/95	
C-106	NCPLX	SOUND	/PI	229	32	30	0.0	0.0	62	52	197	0	F	PS	04/28/82	08/05/94	08/08/94	
C-107	DC	SOUND	IS/IP	237	0	24	0.0	40.8	24	15	237	0	F	S	09/30/95	00/00/00		
C-108	NCPLX	SOUND	IS/IP	66	0	0	0.0	0.0	0	0	66	0	M	S	02/24/84	12/05/74	11/17/94	
C-109	NCPLX	SOUND	IS/IP	66	4	0	0.0	0.0	4	0	62	0	M	PS	11/29/83	01/30/76		
C-110	DC	ASMD LKR	IS/IP	178	1	28	0.0	15.5	29	15	177	0	F	FMP	06/14/95	08/12/86	05/23/95	
C-111	NCPLX	ASMD LKR	IS/IP	57	0	0	0.0	0.0	0	0	57	0	M	S	04/28/82	02/25/70	02/02/95	
C-112	NCPLX	SOUND	IS/IP	104	0	32	0.0	0.0	32	26	104	0	M	PS	09/18/90	09/18/90		
C-201	NCPLX	ASMD LKR	IS/IP	2	0	0	0.0	0.0	0	0	2	0	P	MP	03/31/82	12/02/86		
C-202	EMPTY	ASMD LKR	IS/IP	1	0	0	0.0	0.0	0	0	1	0	P	M	01/19/79	12/09/86		
C-203	NCPLX	ASMD LKR	IS/IP	5	0	0	0.0	0.0	0	0	5	0	P	MP	04/28/82	12/09/86		
C-204	NCPLX	ASMD LKR	IS/IP	3	0	0	0.0	0.0	0	0	3	0	P	MP	04/28/82	12/09/86		
16 SINGLE-SHELL TANKS			TOTALS:	1976	172	190	0.0	103.0	362	272	1804	0						
								S TANK FARM STATUS										
S-101	NCPLX	SOUND	/PI	427	12	126	0.0	0.0	138	127	244	171	F	PS	09/16/80	03/18/88		
S-102	DSSF	SOUND	/PI	549	0	262	0.0	0.0	262	239	4	545	P	FP	04/28/82	03/18/88		
S-103	DSSF	SOUND	/PI	248	17	101	0.0	0.0	118	97	10	221	M	S	11/20/80	06/01/89		
S-104	NCPLX	ASMD LKR	IS/IP	294	1	28	0.0	0.0	29	23	293	0	M	M	12/20/84	12/12/84		
S-105	NCPLX	SOUND	IS/IP	456	0	35	0.0	114.3	35	13	2	454	MP	S	09/26/88	04/12/89		
S-106	NCPLX	SOUND	/PI	479	4	186	0.0	97.0	190	168	28	447	P	FP	12/31/93	03/17/89	09/12/94	
S-107	NCPLX	SOUND	/PI	376	14	85	0.0	0.0	99	88	293	69	F	PS	09/25/80	03/12/87		
S-108	NCPLX	SOUND	IS/PI	450	0	4	0.0	199.8	4	0	4	446	P	MP	12/20/96	03/12/87	12/03/96	
S-109	NCPLX	SOUND	/PI	568	0	141	0.0	111.0	141	119	13	555	F	PS	09/30/75	08/24/84		
S-110	NCPLX	SOUND	IS/PI	390	0	30	0.0	203.1	30	23	131	259	F	PS	05/14/92	03/12/87	12/11/96	
S-111	NCPLX	SOUND	/PI	540	23	195	0.0	3.3	205	134	139	378	P	FP	06/30/97	08/10/89		
S-112	NCPLX	SOUND	/PI	523	0	110	0.0	125.1	110	107	5	518	P	FP	12/31/93	03/24/87		
12 SINGLE-SHELL TANKS			TOTALS:	5300	71	1303	0.0	853.6	1361	1138	1166	4063						

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

May 31, 1998

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
								SX TANK FARM STATUS										
SX-101	DC	SOUND	/PI	456	1	184	0.0	0.0	185	174	112	343	P	FP	04/28/82	03/10/89		
SX-102	DSSF	SOUND	/PI	543	0	226	0.0	0.0	226	216	117	426	P	M	04/28/82	01/07/88		
SX-103	NCPLX	SOUND	/PI	652	1	281	0.0	0.0	282	272	115	536	F	S	07/15/91	12/17/87		
SX-104	DSSF	ASMD LKR	/PI	614	0	200	0.0	114.0	200	194	136	478	F	S	07/07/89	09/08/88	02/04/98	
SX-105	DSSF	SOUND	/PI	683	0	309	0.0	0.0	309	299	73	610	P	F	04/28/82	06/15/88		
SX-106	NCPLX	SOUND	/PI	538	61	224	0.0	0.0	285	264	12	465	F	PS	10/28/80	06/01/89		
SX-107	NCPLX	ASMD LKR	IS/IP	104	0	5	0.0	0.0	5	0	104	0	P	M	04/28/82	03/06/87		
SX-108	NCPLX	ASMD LKR	IS/IP	87	0	5	0.0	0.0	5	0	87	0	P	M	12/31/93	03/06/87		
SX-109	NCPLX	ASMD LKR	IS/IP	244	0	48	0.0	0.0	48	25	0	244	P	M	01/10/96	05/21/86		
SX-110	NCPLX	ASMD LKR	IS/IP	62	0	0	0.0	0.0	0	0	62	0	M	PS	10/06/76	02/20/87		
SX-111	NCPLX	ASMD LKR	IS/IP	125	0	7	0.0	0.0	7	0	125	0	M	PS	05/31/74	06/09/94		
SX-112	NCPLX	ASMD LKR	IS/IP	92	0	3	0.0	0.0	3	0	92	0	P	M	04/28/82	03/10/87		
SX-113	NCPLX	ASMD LKR	IS/IP	26	0	0	0.0	0.0	0	0	26	0	P	M	04/28/82	03/18/88		
SX-114	NCPLX	ASMD LKR	IS/IP	181	0	14	0.0	0.0	14	0	181	0	P	M	04/28/82	02/26/87		
SX-115	NCPLX	ASMD LKR	IS/IP	12	0	0	0.0	0.0	0	0	12	0	P	M	04/28/82	03/31/88		
15 SINGLE-SHELL TANKS			TOTALS:	4419	63	1506	0.0	114	1569	1444	1254	3102						
								T TANK FARM STATUS										
T-101	NCPLX	ASMD LKR	IS/PI	102	1	16	0.0	25.3	17	0	101	0	F	S	04/14/93	04/07/93		
T-102	NCPLX	SOUND	IS/IP	32	13	0	0.0	0.0	13	13	19	0	P	FP	08/31/84	06/28/89		
T-103	NCPLX	ASMD LKR	IS/IP	27	4	0	0.0	0.0	4	0	23	0	F	FP	11/29/83	07/03/84		
T-104	NCPLX	SOUND	/PI	343	0	67	0.0	120.2	67	64	343	0	P	MP	12/31/97	06/29/89		
T-105	NCPLX	SOUND	IS/IP	98	0	23	0.0	0.0	23	17	98	0	P	F	05/29/87	05/14/87		
T-106	NCPLX	ASMD LKR	IS/IP	21	2	0	0.0	0.0	2	0	19	0	P	FP	04/28/82	06/29/89		
T-107	NCPLX	ASMD LKR	IS/PI	173	0	22	0.0	11.0	22	12	173	0	P	FP	05/31/96	07/12/84	05/09/96	
T-108	NCPLX	ASMD LKR	IS/IP	44	0	0	0.0	0.0	0	0	44	0	P	M	04/28/82	07/17/84		

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

May 31, 1998

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUME		VOLUME DETERMINATION					
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
T-109	NCPLX	ASMD LKR	IS/IP	58	0	0	0.0	0.0	0	0	58	0	M	M	12/30/84	02/25/93		
T-110	NCPLX	SOUND	/PI	369	0	26	0.0	17.3	26	23	369	0	P	FP	09/30/97	07/12/84		
T-111	NCPLX	ASMD LKR	IS/PI	446	0	34	0.0	9.6	34	29	446	0	P	FP	04/18/94	04/13/94	02/13/95	
T-112	NCPLX	SOUND	IS/IP	67	7	0	0.0	0.0	7	7	60	0	P	FP	04/28/82	08/01/84		
T-201	NCPLX	SOUND	IS/IP	29	1	3	0.0	0.0	4	0	28	0	M	PS	05/31/78	04/15/86		
T-202	NCPLX	SOUND	IS/IP	21	0	2	0.0	0.0	2	0	21	0	FP	P	07/12/81	07/06/89		
T-203	NCPLX	SOUND	IS/IP	35	0	4	0.0	0.0	4	0	35	0	M	PS	01/31/78	08/03/89		
T-204	NCPLX	SOUND	IS/IP	38	0	4	0.0	0.0	4	0	38	0	FP	P	07/22/81	08/03/89		
16 SINGLE-SHELL TANKS			TOTALS:	1903	28	201	0.0	183.4	229	165	1875	0						

TX TANK FARM STATUS

TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
TX-101	NCPLX	SOUND	IS/IP/CCS	87	3	2	0.0	0.0	5	0	84	0	F	P	02/02/84	10/24/85		
TX-102	NCPLX	SOUND	IS/IP/CCS	217	0	22	0.0	94.4	22	0	0	217	M	S	08/31/84	10/31/85		
TX-103	NCPLX	SOUND	IS/IP/CCS	157	0	15	0.0	68.3	15	0	157	0	F	S	08/14/80	10/31/85		
TX-104	NCPLX	SOUND	IS/IP/CCS	65	1	14	0.0	3.6	15	0	0	64	F	FP	04/06/84	10/16/84		
TX-105	NCPLX	ASMD LKR	IS/IP/CCS	609	0	20	0.0	121.5	20	0	0	609	M	PS	08/22/77	10/24/89		
TX-106	NCPLX	SOUND	IS/IP/CCS	453	0	10	0.0	134.6	10	0	0	453	M	S	08/29/77	10/31/85		
TX-107	NCPLX	ASMD LKR	IS/IP/CCS	36	1	1	0.0	0.0	2	0	0	35	FP	FP	01/20/84	10/31/85		
TX-108	NCPLX	SOUND	IS/IP/CCS	134	0	0	0.0	13.7	0	0	0	134	P	FP	05/30/83	09/12/89		
TX-109	NCPLX	SOUND	IS/IP/CCS	384	0	10	0.0	72.3	10	0	0	384	F	PS	05/30/83	10/24/89		
TX-110	NCPLX	ASMD LKR	IS/IP/CCS	462	0	15	0.0	115.1	15	0	0	462	M	PS	05/30/83	10/24/89		
TX-111	NCPLX	SOUND	IS/IP/CCS	370	0	9	0.0	98.4	9	0	0	370	M	PS	07/26/77	09/12/89		
TX-112	NCPLX	SOUND	IS/IP/CCS	649	0	24	0.0	94.0	24	0	0	649	P	PS	05/30/83	11/19/87		
TX-113	NCPLX	ASMD LKR	IS/IP/CCS	607	0	16	0.0	19.2	16	0	0	607	M	PS	05/30/83	04/11/83	09/23/94	
TX-114	NCPLX	ASMD LKR	IS/IP/CCS	535	0	15	0.0	104.3	15	0	0	535	M	PS	05/30/83	04/11/83	02/17/95	
TX-115	NCPLX	ASMD LKR	IS/IP/CCS	640	0	19	0.0	99.1	19	0	0	640	M	S	03/25/83	06/15/88		
TX-116	NCPLX	ASMD LKR	IS/IP/CCS	631	0	23	0.0	23.8	23	0	0	631	M	PS	03/31/72	10/17/89		
TX-117	NCPLX	ASMD LKR	IS/IP/CCS	626	0	8	0.0	54.3	8	0	0	626	M	PS	12/31/71	04/11/83		
TX-118	NCPLX	SOUND	IS/IP/CCS	347	0	27	0.0	89.1	27	0	0	347	F	S	11/17/80	12/19/79		
18 SINGLE-SHELL TANKS			TOTALS:	7009	5	250	0.0	1205.7	255	0	241	6763						

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

May 31, 1998

TANK STATUS					LIQUID VOLUME						SOLIDS VOLUM		VOLUME DETERMINATION			PHOTOS/VIDEOS		
TANK	WASTE MAT'L.	TANK INTEGRITY	STABIL/ ISOLATION STATUS	TOTAL WASTE (Kgal)	SUPER-NATE LIQUID (Kgal)	DRAIN-ABLE INTER-STIT. (Kgal)	PUMPED THIS MONTH (Kgal)	TOTAL PUMPED (Kgal)	DRAIN-ABLE LIQUID REMAIN (Kgal)	PUMP-ABLE LIQUID REMAIN (Kgal)	SLUDGE (Kgal)	SALT CAKE (Kgal)	LIQUIDS VOLUME METHOD	SOLIDS VOLUME METHOD	SOLIDS VOLUME UPDATE	LAST IN-TANK PHOTO	LAST IN-TANK VIDEO	SEE FOOTNOTES FOR THESE CHANGES
								TY TANK FARM STATUS										
TY-101	NCPLX	ASMD LKR	IS/IP/CCS	118	0	0	0.0	8.2	0	0	118	0	P	F	04/28/82	08/22/89		
TY-102	NCPLX	SOUND	IS/IP/CCS	64	0	14	0.0	6.6	14	0	0	64	P	FP	06/28/82	07/07/87		
TY-103	NCPLX	ASMD LKR	IS/IP/CCS	162	0	5	0.0	11.5	5	0	162	0	P	FP	07/09/82	08/22/89		
TY-104	NCPLX	ASMD LKR	IS/IP/CCS	46	3	12	0.0	0.0	15	0	43	0	P	FP	06/27/90	11/03/87		
TY-105	NCPLX	ASMD LKR	IS/IP/CCS	231	0	0	0.0	3.6	0	0	231	0	P	M	04/28/82	09/07/89		
TY-106	NCPLX	ASMD LKR	IS/IP/CCS	17	0	0	0.0	0.0	0	0	17	0	P	M	04/28/82	08/22/89		
6 SINGLE-SHELL TANKS			TOTALS:	638	3	31	0.0	29.9	34	0	571	64						
								U TANK FARM STATUS										
U-101	NCPLX	ASMD LKR	IS/IP	25	3	0	0.0	0.0	3	0	22	0	P	MP	04/28/82	06/19/79		
U-102	NCPLX	SOUND	/PI	374	18	154	0.0	0.0	172	160	43	313	P	MP	04/28/82	06/08/89		
U-103	NCPLX	SOUND	/PI	468	13	207	0.0	0.0	220	205	32	423	P	FP	04/28/82	09/13/88		
U-104	NCPLX	ASMD LKR	IS/IP	122	0	7	0.0	0.0	7	0	122	0	P	MP	04/28/82	08/10/89		
U-105	NCPLX	SOUND	/PI	418	37	170	0.0	0.0	207	192	32	349	FM	PS	09/30/78	07/07/88		
U-106	NCPLX	SOUND	/PI	226	15	87	0.0	0.0	102	85	26	185	F	PS	12/30/93	07/07/88		
U-107	DSSF	SOUND	/PI	406	31	172	0.0	0.0	203	183	15	360	F	S	12/30/93	10/27/88		
U-108	NCPLX	SOUND	/PI	468	24	202	0.0	0.0	226	209	29	415	F	S	12/30/93	09/12/84		
U-109	NCPLX	SOUND	/PI	463	19	197	0.0	0.0	216	205	48	396	F	F	06/30/96	07/07/88		
U-110	NCPLX	ASMD LKR	IS/PI	186	0	15	0.0	0.0	15	9	186	0	M	M	12/30/84	12/11/84		
U-111	DSSF	SOUND	/PI	329	0	146	0.0	0.0	146	129	26	303	PS	FPS	02/10/84	06/23/88		
U-112	NCPLX	ASMD LKR	IS/IP	49	4	0	0.0	0.0	4	0	45	0	P	MP	02/10/84	08/03/89		
U-201	NCPLX	SOUND	IS/IP	5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79	08/08/89		
U-202	NCPLX	SOUND	IS/IP	5	1	0	0.0	0.0	1	0	4	0	M	S	08/15/79	08/08/89		
U-203	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79	06/13/89		
U-204	NCPLX	SOUND	IS/IP	3	1	0	0.0	0.0	1	0	2	0	M	S	08/15/79	06/13/89		
16 SINGLE-SHELL TANKS			TOTALS:	3550	168	1357	0.0	0.0	1525	1377	638	2744						
GRAND TOTAL				35349	558	6598	0.0	4421.1	7144	5770	11865	22926						

TABLE E-6. INVENTORY AND STATUS BY TANK - SINGLE-SHELL TANKS

May 31, 1998

FOOTNOTES:

Total Waste is calculated as the sum of Sludge and Saltcake plus Supernate.

The category "Interim Isolated" (II) was changed to "Intrusion Prevention" (IP) in June 1993. See section C. "Tank and Equipment Code and Status Definitions."

Stabilization information from WHC-SD-RE-TI-178 SST STABILIZATION RECORD, latest revision, or SST Stabilization or Cognizant Engineer

Note: In April 1998, saltwell operations were delayed because of a concern that water additions (such as those additions then being added to SX-104 to dilute the waste to ease pumping) might be considered waste additions and waste additions are now allowed into SSTs. On May 27, 1998, this was resolved, and stabilization activities utilizing small water additions resumed.

APPENDIX F

PERFORMANCE SUMMARY

TABLE F-1. PERFORMANCE SUMMARY (Sheet 1 of 2)

WASTE VOLUMES (Kgallons)

May 31, 1998

INCREASES/DECREASES IN WASTE VOLUMES STORED IN DOUBLE-SHELL TANKS

SOURCE		THIS MONTH	FY1998 TO DATE
B PLANT		11	37
PUREX TOTAL (1)		0	0
PFP (1)		0	0
T PLANT (1)		0	0
S PLANT (1)		0	0
300 AREAS (1)		0	0
400 AREAS (1)		0	0
SULFATE WASTE -100 N (2)		0	0
TRAINING/X-SITE (9)		0	5
TANK FARMS (6)		3	14
SALTWELL LIQUID (8)		0	0
OTHER GAINS		15	173
Slurry increase (3)	4		
Condensate	10		
Instrument change (7)	0		
Unknown (5)	1		
OTHER LOSSES		-12	-229
Slurry decrease (3)	0		
Evaporation (4)	-8		
Instrument change (7)	-3		
Unknown (5)	-1		
EVAPORATED		0	0
GROUTED		0	0
TOTAL		17	0

Note: No waste due to BIO (Basis for Interim Operation) implementation

CUMULATIVE EVAPORATION - 1950 TO PRESENT WASTE VOLUME REDUCTION

FACILITY		
242-B EVAPORATOR (10)		7172
242-T EVAPORATOR (1950's) (10)		9181
IN-TANK SOLIDIFICATION UNIT 1 (10)		11876
IN-TANK SOLIDIFICATION UNIT 2 (10)		15295
IN-TANK SOLID. UNIT 1 & 2 (10)		7965
(after conversion of Unit 1 to a cooler for Unit 2)		8833
242-T (Modified) (10)		24471
242-S EVAPORATOR (10)		41983
242-A EVAPORATOR (11)		73689
242-A Evaporator was restarted April 15, 1994, after having been shut down since April 1989.		
Total waste reduction since restart:		9486
Campaign 94-1	2417 Kgal	
Campaign 94-2	2787 Kgal	
Campaign 95-1	2161 Kgal	
Campaign 96-1	1117 Kgal	
Campaign 97-1	351 Kgal	
Campaign 97-2	653 Kgal	

TABLE F-1. PERFORMANCE SUMMARY
(Sheet 2 of 2)

Footnotes:

INCREASES/DECREASES IN WASTE VOLUMES

(1) Including flush

(2) Sulfate waste is generated from ion exchange backflushing and sand filter clean out, resulting in sulfate waste.

(3) Slurry increase/growth is caused by gas generation within the waste.

(4) Aging waste tanks

(5) Unknown waste gains or losses

(6) Includes Tank Farms miscellaneous flushes

(7) Liquid level measurement instrument changes from the automatic FIC to manual tape (and vice versa) result in unusual gains or losses because the manual tape may rest on an uneven crust surface giving a different reading from that of the automatic FIC.

(8) Results from pumping of single-shell tanks to double-shell tanks.

(9) Tracks waste being sent to the double-shell tanks from the "Precampaign Training Run." Evaporator procedures require a training run at least once per year. This also includes pressure testing and flushing of cross-site transfer lines.

WASTE VOLUME REDUCTION

(10) Currently inoperative.

(11) Currently operative. The 242-A Evaporator-Crystallizer was started up March 1977, and shut down April 1989 because of regulatory issues, and remained shut down for subsequent upgrading. This evaporator operates under a vacuum, employing evaporative concentration with subsequent crystallization and precipitation of salt crystals (forming saltcake). The evaporator was restarted on April 15, 1994.

TABLE F-2. SUMMARY OF WASTE TRANSACTIONS IN THE DOUBLE-SHELL TANKS

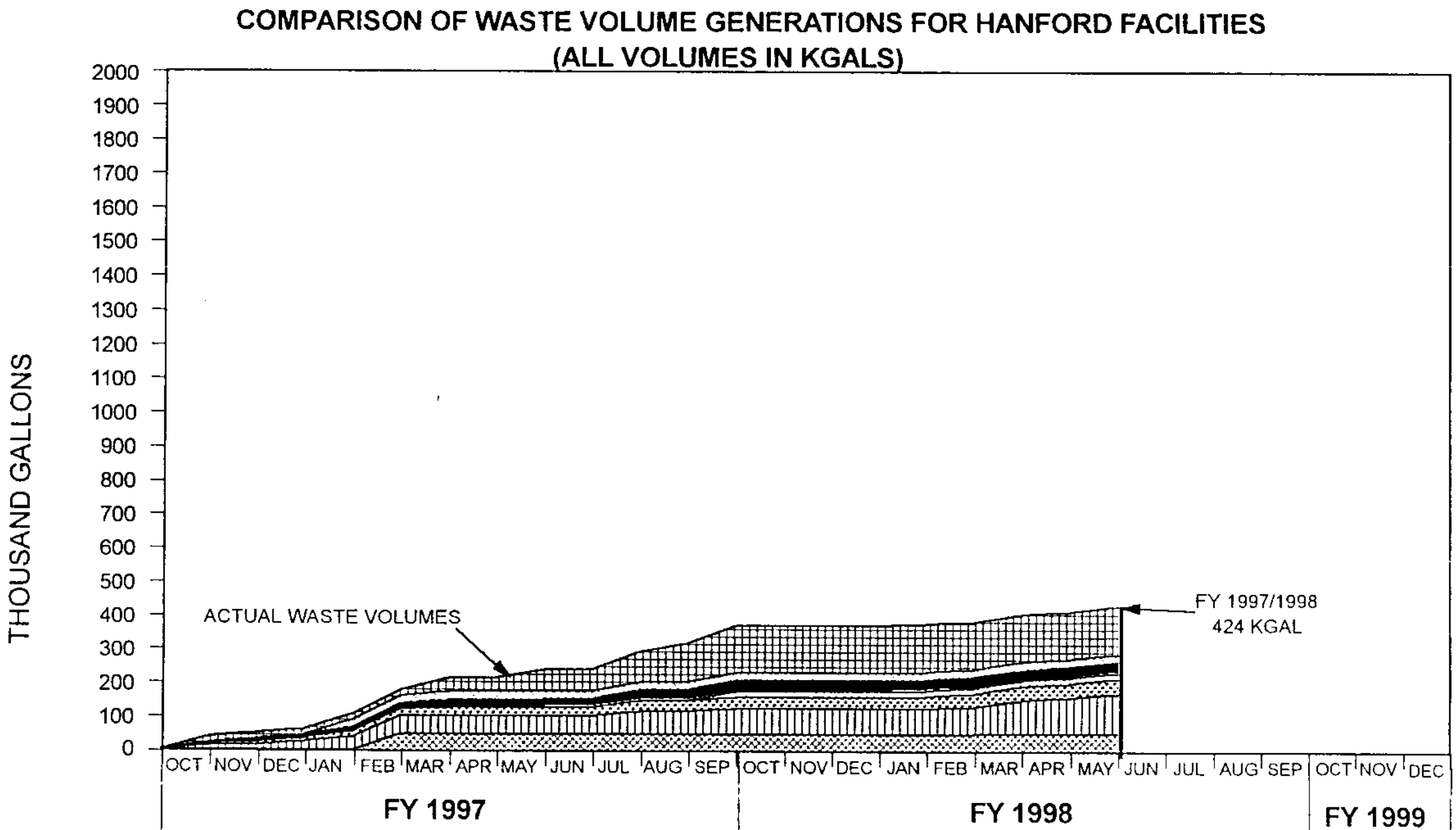
SUMMARY OF WASTE TRANSACTIONS IN THE DOUBLE-SHELL TANK (DST) SYSTEM FOR MAY 1998: ALL VOLUMES IN KGALS

- The DST system received waste transfers/additions from B Plant and Tank Farms for May 1998.
- There was a net change of +17 Kgals in the DST system for May 1998.
- The total DST inventory as of May 31, 1998 was 18,353 Kgals.
- There was no Saltwell Liquid (SWL) pumped to the East Area DSTs in May.
- There was no Saltwell Liquid (SWL) pumped to the West Area DSTs (102-SY) in May.

MAY 1998 DST WASTE RECEIPTS					
FACILITY GENERATIONS		OTHER GAINS ASSOCIATED WITH		OTHER LOSSES ASSOCIATED WITH	
TANK FARMS	+3 Kgal (2AW, 1AN)	SLURRY	+4 Kgal	SLURRY	-0 Kgal
B PLANT	+11 Kgal (2AW)	CONDENSATE	+10 Kgal	CONDENSATE	-8 Kgal
TOTAL	+14 Kgal	INSTRUMENTATION	+0 Kgal	INSTRUMENTATION	-3 Kgal
		UNKNOWN	+1 Kgal	UNKNOWN	-1 Kgal
		TOTAL	+15 Kgal	TOTAL	-12 Kgal

	ACTUAL DST WASTE RECEIPTS	PROJECTED DST WASTE RECEIPTS	MISC. DST CHANGES (+/-)	WVR	NET DST CHANGE	TOTAL DST VOLUME
OCT97	0	64	-31	0	-31	18322
NOV97	0	77	2	0	2	18324
DEC97	0	74	-27	0	-27	18297
JAN98	4	74	-37	0	-33	18264
FEB98	7	74	9	0	+16	18280
MAR98	22	74	-7	0	+15	18295
APR98	9	**89**	32	0	+41	18336
MAY98	14	**119**	3	0	+17	18353
JUN98		**80**		0		
JUL98		**70**		0		
AUG98		**104**		0		
SEP98		**123**		0		

NOTE: Shaded/bolded numbers in the "PROJECTED DST WASTE RECEIPTS" column were updated in April 1998.



	FY 1997												FY 1998												FY 1999		
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SWL WEST	17	0	0	0	0	23	0	24	0	25	24	27	0	0	0	0	0	0	0	0							
SWL EAST	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
100 AREA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
PFP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
400 AREA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
300 AREA	0	8	0	4	5	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0							
S PLANT	1	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
T PLANT	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	4	0	0	0	0							
TANK FARMS	6	5	0	4	3	7	0	1	0	6	0	5	0	0	0	0	2	4	1	3							
B PLANT	14	0	10	15	15	0	0	0	0	13	0	0	0	0	0	0	0	16	8	11							
PUREX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
OTHER	0	0	0	0	46	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0							

NOTE: The Other Category is For Waste Generations From, Evaporator Tranining, Pressure Tests and Cross-Site Transfers

FACILPAC

FIGURE F-1. COMPARISON OF WASTE VOLUME GENERATIONS FOR HANFORD FACILITIES
(All volumes in Kgals)

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APPENDIX G

MISCELLANEOUS UNDERGROUND STORAGE TANKS AND SPECIAL SURVEILLANCE FACILITIES

TABLE G-1. EAST AND WEST AREA MISCELLANEOUS UNDERGROUND STORAGE TANKS AND SPECIAL SURVEILLANCE FACILITIES

ACTIVE - still running transfers through the associated diversion boxes or pipeline encasements

May 31, 1998

FACILITY	LOCATION	PURPOSE (receives waste from:)	(Gallons)	MONITORED BY	REMARKS
EAST AREA					
241-A-302-A	A Farm	A-151 DB	457	SACS/ENRAF	Foamed over Catch Tank pump pit & div. box to prevent intrusion
241-ER-311	B Plant	ER-151, ER-152 DB	5353	SACS/CASS/FIC	Increase from drain off from Diversion Box
241-AX-152	AX Farm	AX-152 DB	5358	SACS/MT	Increase from rain/snow melt
241-AZ-151	AZ Farm	AZ-702 condensate	7914	SACS/CASS/FIC	Volume changes daily - pumped to AZ-102 (5/3 & 5/16)
241-AZ-154	AZ Farm		25	SACS/CASS/MT	
244-BX-TK/SMP	BX Complex	DCRT - Receives from several farms	22387	SACS/MANUALLY	Using Manual Tape for tank
244-A-TK/SMP	A Complex	DCRT - Receives from several farms	7541	MCS	WTF
A-350	A Farm	Collects drainage	285	SACS/WTF	WTF, increase from rain/snow melt - pumped 5/98
AR-204	AY Farm	RR Cars during transfer to rec. tanks	1190	DIP TUBE	Alarms on CASS
A-417	A Farm		11757	SACS/DIP TUBE	WTF - pumped 4/98
CR-003-TK/SUMP	C Farm	DCRT	4271	MT/ZIP CORD	Zip cord in sump O/S 3/11/96, water intrusion, 1/98
WEST AREA					
241-TX-302-C	TX Farm	TX-154 DB	454	SACS/CASS/ENRAF	
241-U-301-B	U Farm	U-151, U-152, U-153, U-252 DB	8156	SACS/CASS/ENRAF	Returned to service 12/30/93
241-UX-302-A	U Plant	UX-154 DB	1633	SACS/CASS/ENRAF	
241-S-304	S Farm	S-151 DB	O/S	SACS/RS	10/91, replaced S-302-A, Manual FIC, O/S 3/27/98 Sump not alarming
244-S-TK/SMP	S Farm	DCRT - Receives from several farms	13882	SACS/MANUALLY	CWF
244-TX-TK/SMP	TX Farm	DCRT - Receives from several farms	12473	SACS/MANUALLY	MT
Vent Station Catch Tank		Cross Country Transfer Line	332	SACS/MANUALLY	MT

Total Active Facilities 18

Note: Readings may be taken manually or automatically by FIC (or ENRAF). All FICs and manual ENRAFs connected to CASS. All tanks on CASS (either auto or manual) are also on the SACS database. If automatic connections to CASS are broken, readings are taken manually. Manual readings include readings taken by manual tape, manual FIC, or manual readings of automatic FIC (if CASS is printing "0"). Readings may also be taken by zip cord, which are acceptable but less accurate.

LEGEND:
- DB - Diversion Box
- DCRT - Double-Contained Receiver Tank
- TK - Tank
- SMP - Sump
- FIC - Food Instrument Corporation measurement device
- RS - Robert Shaw instrument measurement device
- MFIC - Manual FIC
- MT - Manual Tape
- CWF - Weight Factor/SpG = Corrected Weight Factor
- CASS - Computer Automated Surveillance System
- SACS - Surveillance Automated Control System
- MCS - Monitor and Control System
- O/S - Out of Service
- ENRAF - Surface Level Measuring Device

TABLE G-2. EAST AREA INACTIVE MISC. UNDERGROUND STORAGE TANKS AND SPECIAL SURV. FACILITIES

INACTIVE - no longer receiving waste transfers

May 31, 1998

FACILITY	LOCATION	RECEIVED WASTE FROM:	(Gallons)	MONITORED BY	REMARKS
216-BY-201	BY Farm	TBP Waste Line	Unknown	NM	(216-BY)
241-A-302-B	A Farm	A-152 DB	5642	CASS/MT	Isolated 1985, Project B-138 Interim Stabilized 1990, Rain intrusion
241-AX-151	N of PUREX	PUREX	Unknown	NM	Isolated 1985
241-B-301-B	B Farm	B-151, B-152, B-153, B-252 DB	22250	NM	Isolated 1985 (1)
241-B-302-B	B Farm	B-154 DB	4930	NM	Isolated 1985 (1)
241-BX-302-A	BX Farm	BR-152, BX-153, BXR-152, BYR-152 DB	840	NM	Isolated 1985 (1)
241-BX-302-B	BX Farm	BX-154 DB	1040	NM	Isolated 1985 (1)
241-BX-302-C	BX Farm	BX-155 DB	870	NM	Isolated 1985 (1)
241-C-301-C	C Farm	C-151, C-152, C-153, C-252 DB	10470	NM	Isolated 1985 (1)
241-CX-70	Hot Semi-	Transfer lines	Unknown	NM	Isolated, Decommission Project,
241-CX-72	Works	Transfer lines	650	NM	See Dwg H-2-95-501, 2/5/87
241-ER-311A	SW B Plant	ER-151 DB	Unknown	NM	Isolated
244-AR VAULT	A Complex	Between farms & B-Plant	Unknown	NM	Not actively being used. Systems activated for final clean-out.
244-BXR-TK/SMP-001	BX Farm	Transfer lines	7200	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-002	BX Farm	Transfer lines	2180	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-003	BX Farm	Transfer lines	1810	NM	Interim Stabilization 1985 (1)
244-BXR-TK/SMP-011	BX Farm	Transfer lines	7100	NM	Interim Stabilization 1985 (1)
361-B-TANK	B Plant	Drainage from B-Plant	Unknown	NM	Interim Stabilization 1985 (1)

Total East Area Inactive facilities 18

LEGEND:
- DB - Diversion Box
- DCRT - Double-Contained Receiver Tank
- MT - Manual Tape
- CASS - Computer Automated Surveillance System
- TK - Tank
- SMP - Sump
- R - Usually denotes replacement
- NM - Not Monitored

(1) SOURCE: WASTE STORAGE TANK STATUS & LEAK DETECTION CRITERIA document

TABLE G-3. WEST AREA INACTIVE MISC. UNDERGROUND STORAGE TANKS AND SPECIAL SURV. FACILITIES

INACTIVE - no longer receiving waste transfers

May 31, 1998

FACILITY	LOCATION	RECEIVED WASTE FROM:	(Gallons)	MONITORED BY	REMARKS
216-TY-201	E. of TY Farm	Supernate from T-112	Unknown	NM	Isolated
231-W-151-001	N. of Z Plant	231-Z Floor drains	Unknown	NM	Inactive, last data 1974
231-W-151-002	N. of Z Plant	231-Z Floor drains	Unknown	NM	Inactive, last data 1974
240-S-302	S Farm	240-S-151 DB	8571	CASS/ENRAF	Assumed Leaker EPDA 85-04
241-S-302-A	S Farm	241-S-151 DB	0	CASS/FIC *	Assumed Leaker TF-EFS-90-042
			* FIC in Intrusion mode		Partially filled with grout 2/91, determined still assumed leaker after leak test
241-S-302-B	S Farm	S Encasements	Unknown	NM	Isolated 1985 (1)
241-SX-302	SX Farm	SX-151 DB, 151 TB	Unknown	NM	Isolated 1987
241-SX-304	SX Farm	SX-152 Transfer Box, SX-151 DB	Unknown	NM	Isolated 1985 (1)
241-T-301	T Farm	DB T-151, -151, -153, -252	Unknown	NM	Isolated 1985 (241-T-301B)
241-TX-302	TX Farm	TX-153 DB	Unknown	NM	Isolated 1985 (1)
241-TX-302-X-B	TX Farm	TX Encasements	Unknown	NM	Isolated 1985 (1)
241-TX-302-B	TX Farm	TX-155 DB	1600	CASS/MT	New MT installed 7/16/93
241-TX-302B(R)	E. of TX Farm	TX-155 DB	Unknown	NM	Isolated
241-TY-302-A	TY Farm	TX-153 DB	Unknown	NM	Isolated 1985 (1)
241-TY-302-B	TY Farm	TY Encasements	Unknown	NM	Isolated 1985 (1)
241-Z-8	E. of Z Plant	Recuplex waste	Unknown	NM	Isolated, 1974, 1975
242-T-135	T Evaporator	T Evaporator	Unknown	NM	Isolated
242-TA-R1	T Evaporator	Z Plant waste	Unknown	NM	Isolated
243-S-TK-1	N. of S Farm	Pers. Decon. Facility	Unknown	NM	Isolated
244-U-TK/SMP	U Farm	DCRT - Receives from several farms	Unknown	NM	Not yet in use
244-TXR VAULT	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-001	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-002	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
244-TXR-TK/SMP-003	TX Farm	Transfer lines	Unknown	NM	Interim Stabilized, MT removed 1984 (1)
270-W	SE of U Plant	Condensate from U-221	Unknown	NM	Isolated 1970
361-T-TANK	T Plant	Drainage from T-Plant	Unknown	NM	Isolated 1985 (1)
361-U-TANK	U Plant	Drainage from U-Plant	Unknown	NM	Interim Stabilzed, MT removed 1984 (1)

Total West Area inactive facilities 27

LEGEND:
DB - Diversion Box, TB - Transfer Box
DCRT - Double-Contained Receiver Tank
TK - Tank
SMP - Sump
R - Usually denotes replacement
FIC - Surface Level Monitoring Device
MT - Manual Tape
O/S - Out of Service
CASS - Computer Automated Surveillance System
NM - Not Monitored
ENRAF - Surface Level Monitoring Device

(1) SOURCE: WASTE STORAGE TANK STATUS & LEAK DETECTION CRITERIA document

APPENDIX H

LEAK VOLUME ESTIMATES

TABLE H-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES (Sheet 1 of 5)

May 31, 1998

Tank No.	Date Declared Confirmed or Assumed Leaker (3)	Volume (2)(4) (Gallons)	Associated KiloCuries 137 cs (10)	Interim Stabilized Date (12)	Leak Estimate Updated	Leak Estimate Reference
241-A-103	1987	5500 (9)		06/88	1987	(j)
241-A-104	1975	500 to 2500	0.8 to 1.8 (q)	09/78	1983	(a) (q)
241-A-105 (1)	1963	10000 to 277000	85 to 760 (b)	07/79	1991	(b),(c)
241-AX-102	1988	3000 (9)		09/88	1989	(h)
241-AX-104	1977	-- (7)		08/81	1989	(g)
241-B-101	1974	-- (7)		03/81	1989	(g)
241-B-103	1978	-- (7)		02/85	1989	(g)
241-B-105	1978	-- (7)		12/84	1989	(g)
241-B-107	1980	8000 (9)		03/85	1986	(d),(f)
241-B-110	1981	10000 (9)		03/85	1986	(d)
241-B-111	1978	-- (7)		06/85	1989	(g)
241-B-112	1978	2000		05/85	1989	(g)
241-B-201	1980	1200 (9)		08/81	1984	(e),(f)
241-B-203	1983	300 (9)		06/84	1986	(d)
241-B-204	1984	400 (9)		06/84	1989	(g)
241-BX-101	1972	-- (7)		09/78	1989	(g)
241-BX-102	1971	70000	50 (l)	11/78	1986	(d)
241-BX-108	1974	2500	0.5 (l)	07/79	1986	(d)
241-BX-110	1976	-- (7)		08/85	1989	(g)
241-BX-111	1984 (14)	-- (7)		03/95	1993	(g),(r)
241-BY-103	1973	<5000		11/97	1983	(a)
241-BY-105	1984	-- (7)		N/A	1989	(g)
241-BY-106	1984	-- (7)		N/A	1989	(g)
241-BY-107	1984	15100 (9)		07/79	1989	(g)
241-BY-108	1972	<5000		02/85	1983	(a)
241-C-101	1980	20000 (9)(11)		11/83	1986	(d)
241-C-110	1984	2000		05/95	1989	(g)
241-C-111	1968	5500 (9)		03/84	1989	(g)
241-C-201 (5)	1988	550		03/82	1987	(i)
241-C-202 (5)	1988	450		08/81	1987	(i)
241-C-203	1984	400 (9)		03/82	1986	(d)
241-C-204 (5)	1988	350		09/82	1987	(i)
241-S-104	1968	24000 (9)		12/84	1989	(g)
241-SX-104	1988	6000 (9)		N/A	1988	(k)
241-SX-107	1964	<5000		10/79	1983	(a)
241-SX-108 (6)	1962	2400 to 35000	17 to 140 (m)(q)	08/79	1991	(m) (q)
241-SX-109 (6)	1965	<10000	<40 (n)	05/81	1992	(n)
241-SX-110	1976	5500 (9)		08/79	1989	(g)
241-SX-111	1974	500 to 2000	0.6 to 2.4 (l) (q)	07/79	1986	(d) (q)
241-SX-112	1969	30000	40 (l)	07/79	1986	(d)
241-SX-113	1962	15000	8 (l)	11/78	1986	(d)
241-SX-114	1972	-- (7)		07/79	1989	(g)
241-SX-115	1965	50000	21 (o)	09/78	1992	(o)
241-T-101	1992	7500 (9)		04/93	1992	(p)
241-T-103	1974	<1000 (9)		11/83	1989	(g)
241-T-106	1973	115000 (9)	40 (l)	08/81	1986	(d)
241-T-107	1984	-- (7)		05/96	1989	(g)
241-T-108	1974	<1000 (9)		11/78	1980	(f)
241-T-109	1974	<1000 (9)		12/84	1989	(g)
241-T-111	1979, 1994 (13)	<1000 (9)		02/95	1994	(f)(t)
241-TX-105	1977	-- (7)		04/83	1989	(g)
241-TX-107 (6)	1984	2500		10/79	1986	(d)
241-TX-110	1977	-- (7)		04/83	1989	(g)
241-TX-113	1974	-- (7)		04/83	1989	(g)
241-TX-114	1974	-- (7)		04/83	1989	(g)
241-TX-115	1977	-- (7)		09/83	1989	(g)
241-TX-116	1977	-- (7)		04/83	1989	(g)
241-TX-117	1977	-- (7)		03/83	1989	(g)
241-TY-101	1973	<1000 (9)		04/83	1980	(f)
241-TY-103	1973	3000	0.7 (l)	02/83	1986	(d)
241-TY-104	1981	1400 (9)		11/83	1986	(d)
241-TY-105	1960	35000	4 (l)	02/83	1986	(d)
241-TY-106	1959	20000	2 (l)	11/78	1986	(d)
241-U-101	1959	30000	20 (l)	09/79	1986	(d)
241-U-104	1961	55000	0.09 (l)	10/78	1986	(d)
241-U-110	1975	5000 to 8100 (9)	0.05 (q)	12/84	1986	(d) (q)
241-U-112	1980	8500 (9)		09/79	1986	(d)
67 Tanks		<750,000 - 1,050,000 (8)				

N/A = not applicable (not yet interim stabilized)

TABLE H-1. SINGLE-SHELL LEAK VOLUME ESTIMATES
(Sheet 2 of 5)

Footnotes:

(1) Current estimates [see reference(b)] are that 610 Kgallons of cooling water was added to Tank 241-A-105 from November 1970 to December 1978 to aid in evaporative cooling. In accordance with Dangerous Waste Regulations [Washington Administrative Code 173-303-070 (2)(a)(ii), as amended, Washington State Department of Ecology, 1990, Olympia, Washington], any of this cooling water that has been added and subsequently leaked from the tank must be classified as a waste and should be included in the total leak volume. In August 1991, the leak volume estimate for this tank was updated in accordance with the WAC regulations. Previous estimates excluded the cooling water leaks from the total leak volume estimates because the waste content (concentration) in the cooling water which leaked should be much less than the original liquid waste in the tank (the sludge is relatively insoluble). The total leak volume estimate in this report (10 Kgallons to 277 Kgallons) is based on the following (see References):

1. Reference (b) contains an estimate of 5 Kgallons to 15 Kgallons for the initial leak prior to August 1968.

2. Reference (b) contains an estimate of 5 Kgallons to 30 Kgallons for the leak while the tank was being sluiced from August 1968 to November 1970.

3. Reference (b) contains an estimate of 610 Kgallons of cooling water added to the tank from November 1970 to December 1978 but it was estimated that the leakage was small during this period. This reference contains the statement "Sufficient heat was generated in the tank to evaporate most, and perhaps nearly all, of this water." This results in a low estimate of zero gallons leakage from November 1970 to December 1978.

4. Reference (c) contains an estimate the 378 to 410 Kgallons evaporated out of the tank from November 1970 to December 1978. Subtracting the minimum evaporation estimate from the cooling water added estimate provides a range from 0 to 232 Kgallons of cooling water leakage from November 1970 to December 1978.

	Low Estimate	High Estimate
Prior to August 1968	5,000	15,000
August 1968 to November 1970	5,000	30,000
November 1970 to December 1978	0	232,000
Totals	10,000	277,000

(2) These leak volume estimates do not include (with some exceptions), such things as: (a) cooling/raw water leaks, (b) intrusions (rain infiltration) and subsequent leaks, (c) leaks inside the tank farm but not through the tank liner (surface leaks, pipeline leaks, leaks at the joint for the overflow or fill lines, etc.), and (d) leaks from catch tanks, diversion boxes, encasements, etc.

(3) In many cases, a leak was suspected long before it was identified or confirmed. For example, reference (d) shows that Tank 241-U-104 was suspected of leaking in 1956. The leak was "confirmed" in 1961. This report lists the "assumed leaker" date of 1961. Using present standards, Tank 241-U-104 would have been declared an assumed leaker in 1956. In 1984, the criteria designations of "suspected leaker," "questionable integrity," "confirmed leaker," "declared leaker," "borderline" and "dormant," were merged into one category now reported as "assumed leaker." See reference (f) for explanation of when, how long, and how fast some of the tanks leaked. It is highly likely that there have been undetected leaks from single-shell tanks because of the nature of their design and instrumentation.

(4) There has been an effort in the past few years to re-evaluate these leak volume estimates; however, the activity is not currently funded.

TABLE H-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 3 of 5)

(5) The leak volume estimate date for these tank is before the "declared leaker" date because the tank was in a "suspected leaker" or "questionable integrity" status; however, a leak volume had been estimated prior to the tank being reclassified.

(6) The increasing radiation levels in drywells and laterals associated with these three tanks could be indicative of a continuing leak or movement of existing radio nuclides in the soil. There is no conclusive way to confirm these observations.

(7) Methods were used to estimate the leak volumes from these 19 tanks based on the assumption that their cumulative leakage is approximately the same as for 18 of the 24 tanks identified in footnote (9). For more details see reference (g). The total leak volume estimate for these tanks is 150 Kgallons (rounded to the nearest Kgallons), for an average of approximately 8 Kgallons for each of 19 tanks.

(8) The total has been rounded to the nearest 50 Kgallons. Upper bound values were used in many cases in developing these estimates. It is likely that some of these tanks have not actually leaked.

(9) Leak volume estimate is based solely on observed liquid level decreases in these tanks. This is considered to be the most accurate method for estimating leak volumes.

(10) The curie content shown is as listed in the reference document and is not decayed to a consistent date: therefore, a cumulative total is inappropriate.

(11) Tank 241-C-101 experienced a liquid level decrease in the late 1960s and was taken out of service and pumped to a "minimum heel" in December 1969. In 1970, the tank was classified as a "questionable integrity" tank. Liquid level data show decreases in level throughout the 1970s and the tank was saltwell pumped during the 1970s, ending in April 1979. The tank was reclassified as a "confirmed leaker" in January 1980. See references (q) and (s); refer to reference (s) for information on the potential for there to have been leaks from other C-farm tanks (specifically, C-102, C-103, and C-109).

(12) These dates indicate when the tanks were declared to be interim stabilized. In some cases, the official interim stabilization documents were issued at a later date. Also, in some cases, the field work associated with interim stabilization was completed at an earlier date.

(13) Tank T-111 was declared an assumed re-leaker on February 28, 1994, due to a decreasing trend in surface level measurement. This tank was pumped, and interim stabilization completed on February 22, 1995.

(14) Tank BX-111 was declared an assumed re-leaker in April 1993. Preparations for pumping were delayed, following an administrative hold place on all tank farm operations in August 1993. Pumping resumed and the tank was declared interim stabilized on March 15, 1995.

TABLE H-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 4 of 5)

References:

(a) Murthy, K.S., et al, June 1983, *Assessment of Single-Shell Tank Residual Liquid Issues at Hanford Site, Washington*, PNL-4688, Pacific Northwest Laboratory, Richland, Washington.

(b) WHC, 1991a, *Tank 241-A-105 Leak Assessment*, WHC-MR-0264, Westinghouse Hanford Company, Richland, Washington.

(c) WHC, 1991b, *Tank 241-A-105 Evaporation Estimate 1970 Through 1978*, WHC-EP-0410, Westinghouse Hanford Company, Richland, Washington.

(d) Smith, D. A., January 1986, *Single-Shell Tank Isolation Safety Analysis Report*, SD-WM-SAR-006, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

(e) McCann, D. C., and T. S. Vail, September 1984, *Waste Status Summary*, RHO-RE-SR-14, Rockwell Hanford Operations, Richland, Washington.

(f) Catlin, R. J., March 1980, *Assessment of the Surveillance Program of the High-Level Waste Storage Tanks at Hanford*, Hanford Engineering Development Laboratory, Richland, Washington.

(g) Baumhardt, R. J., May 15, 1989, Letter to R. E. Gerton, U.S. Department of Energy-Richland Operations Office, *Single-Shell Tank Leak Volumes*, 8901832B R1, Westinghouse Hanford Company, Richland, Washington.

(h) WHC, 1990a, Occurrence Report, *Surface Level Measurement Decrease in Single-Shell Tank 241-AX-102*, WHC-UO-89-023-TF-05, Westinghouse Hanford Company, Richland, Washington.

(i) Groth, D. R., July 1, 1987, Internal Memorandum to R. J. Baumhardt, *Liquid Level Losses in Tanks 241-C-201, -202 and -204*, 65950-87-517, Westinghouse Hanford Company, Richland, Washington.

(j) Groth, D. R. and G. C. Owens, May 15, 1987, Internal Memorandum to J. H. Roecker, *Tank 103-A Integrity Evaluation*, Westinghouse Hanford Company, Richland, Washington.

(k) Campbell, G. D., July 8, 1988, Internal Memorandum to R. K. Welty, *Engineering Investigation: Interstitial Liquid Level Decrease in Tank 241-SX-104*, 13331-88-416, Westinghouse Hanford Company, Richland, Washington.

(l) ERDA, 1975, *Final Environmental Statement Waste Management Operations, Hanford Reservation, Richland, Washington*, ERDA-1538, 2 vols., U.S. Energy Research and Development Administration, Washington, D.C.

(m) WHC, 1992a, *Tank 241-SX-108 Leak Assessment*, WHC-MR-0300, Westinghouse Hanford Company, Richland, Washington.

(n) WHC, 1992b, *Tank 241-SX-109 Leak Assessment*, WHC-MR-0301, Westinghouse Hanford Company, Richland, Washington.

(o) WHC, 1992c, *Tank 241-SX-115 Leak Assessment*, WHC-MR-0302, Westinghouse Hanford Company, Richland, Washington.

TABLE H-1. SINGLE-SHELL TANK LEAK VOLUME ESTIMATES
(Sheet 5 of 5)

(p) WHC, 1992d, Occurrence Report, *Apparent Decrease in Liquid Level in Single Shell Underground Storage Tank 241-T-101, Leak Suspected; Investigation Continuing*, RL-WHC-TANKFARM-1992-0073, Westinghouse Hanford Company, Richland, Washington.

(q) WHC-1990b, *A History of the 200 Area Tank Farms*, WHC-MR-0132, Westinghouse Hanford Company, Richland, Washington.

(r) WHC, 1993, Occurrence Report, *Single-Shell Underground Waste Storage Tank 241-BX-111 Surface Level Decrease and Change From Steady State Condition*, RL-WHC-TANKFARM-1993-0035, Westinghouse Hanford Company, Richland, Washington.

(s) WHC, 1993a, *Assessment of Unsaturated Zone Radionuclide Contamination Around Single-Shell Tanks 241-C-105 and 241-C-106, WHC-SD-EN-TI-185*, REV OA, Westinghouse Hanford Company, Richland, Washington.

(t) WHC, 1994, Occurrence Report, *Apparent Liquid Level Decrease in Single Shell Underground Storage Tank 241-T-111; Declared an Assumed Re-Leaker*, RL-WHC-TANKFARM-1994-0009, Westinghouse Hanford Company, Richland, Washington.

APPENDIX I

INTERIM STABILIZATION STATUS
CONTROLLED, CLEAN, AND STABLE STATUS

TABLE I-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (Sheet 1 of 3)

May 31, 1998

Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method	Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method	Tank Number	Tank Integrity	Interim Stabil. Date (1)	Stabil. Method
A-101	SOUND	N/A		C-101	ASMD LKR	11/83	AR	T-108	ASMD LKR	11/78	AR
A-102	SOUND	08/89	SN	C-102	SOUND	09/95	JET	T-109	ASMD LKR	12/84	AR
A-103	ASMD LKR	06/88	AR	C-103	SOUND	N/A		T-110	SOUND	N/A	
A-104	ASMD LKR	09/78	AR	C-104	SOUND	09/89	SN	T-111	ASMD LKR	02/95	JET
A-105	ASMD LKR	07/79	AR	C-105	SOUND	10/95	AR (5)	T-112	SOUND	03/81	AR(2)(3)
A-106	SOUND	08/82	AR	C-106	SOUND	N/A		T-201	SOUND	04/81	AR (3)
AX-101	SOUND	N/A		C-107	SOUND	09/85	JET	T-202	SOUND	08/81	AR
AX-102	ASMD LKR	09/88	SN	C-108	SOUND	03/84	AR	T-203	SOUND	04/81	AR
AX-103	SOUND	08/87	AR	C-109	SOUND	11/83	AR	T-204	SOUND	08/81	AR
AX-104	ASMD LKR	08/81	AR	C-110	ASMD LKR	05/95	JET	TX-101	SOUND	02/84	AR
B-101	ASMD IKR	03/81	SN	C-111	ASMD LKR	03/84	SN	TX-102	SOUND	04/83	JET
B-102	SOUND	08/85	SN	C-112	SOUND	09/90	AR	TX-103	SOUND	08/83	JET
B-103	ASMD IKR	02/85	SN	C-201	ASMD LKR	03/82	AR	TX-104	SOUND	09/79	SN
B-104	SOUND	06/85	SN	C-202	ASMD LKR	08/81	AR	TX-105	ASMD LKR	04/83	JET
B-105	ASMD IKR	12/84	AR	C-203	ASMD LKR	03/82	AR	TX-106	SOUND	06/83	JET
B-106	SOUND	03/85	SN	C-204	ASMD LKR	09/82	AR	TX-107	ASMD LKR	10/79	AR
B-107	ASMD LKR	03/85	SN	S-101	SOUND	N/A		TX-108	SOUND	03/83	JET
B-108	SOUND	05/85	SN	S-102	SOUND	N/A		TX-109	SOUND	04/83	JET
B-109	SOUND	04/85	SN	S-103	SOUND	N/A		TX-110	ASMD LKR	04/83	JET
B-110	ASMD LKR	12/84	AR	S-104	ASMD LKR	12/84	AR	TX-111	SOUND	04/83	JET
B-111	ASMD LKR	06/85	SN	S-105	SOUND	09/88	JET	TX-112	SOUND	04/83	JET
B-112	ASMD LKR	05/85	SN	S-106	SOUND	N/A		TX-113	ASMD LKR	04/83	JET
B-201	ASMD LKR	08/81	AR (3)	S-107	SOUND	N/A		TX-114	ASMD LKR	04/83	JET
B-202	SOUND	05/85	AR	S-108	SOUND	12/96	JET (7)	TX-115	ASMD LKR	09/83	JET
B-203	ASMD LKR	06/84	AR	S-109	SOUND	N/A		TX-116	ASMD LKR	04/83	JET
B-204	ASMD LKR	06/84	AR	S-110	SOUND	01/97	JET (8)	TX-117	ASMD LKR	03/83	JET
BX-101	ASMD LKR	09/78	AR	S-111	SOUND	N/A		TX-118	SOUND	04/83	JET
BX-102	ASMD LKR	11/78	AR	S-112	SOUND	N/A		TY-101	ASMD LKR	04/83	JET
BX-103	SOUND	11/83	AR(2)	SX-101	SOUND	N/A		TY-102	SOUND	09/79	AR
BX-104	SOUND	09/89	SN	SX-102	SOUND	N/A		TY-103	ASMD LKR	02/83	JET
BX-105	SOUND	03/81	SN	SX-103	SOUND	N/A		TY-104	ASMD LKR	11/83	AR
BX-106	SOUND	07/95	SN	SX-104	ASMD LKR	N/A		TY-105	ASMD LKR	02/83	JET
BX-107	SOUND	09/90	JET	SX-105	SOUND	N/A		TY-106	ASMD LKR	11/78	AR
BX-108	ASMD LKR	07/79	SN	SX-106	SOUND	N/A		U-101	ASMD LKR	09/79	AR
BX-109	SOUND	09/90	JET	SX-107	ASMD LKR	10/79	AR	U-102	SOUND	N/A	
BX-110	ASMD LKR	08/85	SN (4)	SX-108	ASMD LKR	08/79	AR	U-103	SOUND	N/A	
BX-111	ASMD LKR	03/95	JET	SX-109	ASMD LKR	05/81	AR	U-104	ASMD LKR	10/78	AR
BX-112	SOUND	09/90	JET	SX-110	ASMD LKR	08/79	AR	U-105	SOUND	N/A	
BY-101	SOUND	05/84	JET	SX-111	ASMD LKR	07/79	SN	U-106	SOUND	N/A	
BY-102	SOUND	04/95	JET	SX-112	ASMD LKR	07/79	AR	U-107	SOUND	N/A	
BY-103	ASMD LKR	11/97	JET(10)	SX-113	ASMD LKR	11/78	AR	U-108	SOUND	N/A	
BY-104	SOUND	01/85	JET	SX-114	ASMD LKR	07/79	AR	U-109	SOUND	N/A	
BY-105	ASMD LKR	N/A		SX-115	ASMD LKR	09/78	AR	U-110	ASMD LKR	12/84	AR
BY-106	ASMD LKR	N/A		T-101	ASMD LKR	04/93	SN	U-111	SOUND	N/A	
BY-107	ASMD LKR	07/79	JET	T-102	SOUND	03/.81	AR(2)(3)	U-112	ASMD LKR	09/79	AR
BY-108	ASMD LKR	02/85	JET	T-103	ASMD LKR	11/83	AR	U-201	SOUND	08/79	AR
BY-109	SOUND	07/97	JET(9)	T-104	SOUND	N/A		U-202	SOUND	08/79	SN
BY-110	SOUND	01/85	JET	T-105	SOUND	06/87	AR	U-203	SOUND	08/79	AR
BY-111	SOUND	01/85	JET	T-106	ASMD LKR	08/81	AR	U-204	SOUND	08/79	SN
BY-112	SOUND	06/84	JET	T-107	ASMD LKR	05/96	JET				

LEGEND:

AR = Administratively interim stabilized
JET = Saltwell jet pumped to remove drainable interstitial liquid
SN = Supernate pumped (Non-Jet pumped)
N/A = Not yet interim stabilized
ASMD LKR = Assumed Leaker

Interim Stabilized Tanks	119
Not Yet Interim Stabilized	30
Total Single-Shell Tanks	149

TABLE I-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (sheet 2 of 3)

Footnotes:

(1) These dates indicate when the tanks were actually interim stabilized. In some cases, the official interim stabilization documents were issued at a later date.

(2) Originally, seven tanks (B-104, B-110, B-111, BX-103, T-102, and T-112) did not meet current established supernatant and interstitial liquid interim stabilization criteria, but did meet the criteria in existence when they were declared interim stabilized.

B-110, B-111, U-110 were determined to have met current interim stabilization criteria, per WHC-SD-WM-ER-516-REV 0, "Interim Stabilization Status of SSTs B-104, B-110, B-111, T-102, T-112, and U-110," and WHC-SD-WM-ER-518-REV 0, "Investigation of Liquid Intrusion in 241-BX-103," both dated October 5, 1995.

B-104, BX-103, T-102, T-112 have been determined to meet current interim stabilization criteria as of September 30, 1996, per memo 9654456, J. H. Wicks to Dr. J. K. McClusky, DOE-RL.

B-202 was determined to no longer meet the current established criteria for 200-series tanks due to a steady increase in the surface level indicating an ongoing intrusion based on a comparison of in-tank videos and subsequent evaluation in March 1996.

(3) Original Interim Stabilization data are missing on four tanks: B-201, T-102, T-112, and T-201.

(4) BX-110 was interim stabilized by Supernate Pumping in August 1985. Jet pumping began in December 1993 and soon stopped because of equipment failure. Due to low net volume pumped, major equipment failure, and ALARA, it was decided jet pumping would not resume. An in-tank video was taken in October 1994. Re-evaluation after review of the video indicated 1.5 Kgallons of waste was pumped. (Almost 3 Kgallons of water flushes were needed to produce 1.5 Kgallons tank waste.)

(5) C-105 was interim stabilized administratively on October 30, 1995. No jet pumping occurred in this tank, nor does interstitial liquid level data exist for this tank. There are no diptubes or LOWs installed. Approximately 12 Kgallons of liquid waste was evaporated between May 1993 and October 1995. An in-tank video taken August 30, 1995, revealed a shallow supernatant pool surrounded by a 5-8 foot solids waste shore. The volume of supernate is estimated as 2 Kgallons. The tank currently meets the established criteria for declaring single-shell tanks Interim Stabilized.

(6) T-107 was interim stabilized by Jet Pumping in May 1996. Pumping was completed in March, and an in-tank video taken in May showed no supernate visible on the surface. The surface has an irregular contour of mostly sludge, and the elevation differences between high and low points appear to be about four inches.

(7) S-108 was interim stabilized by Jet Pumping in December 1996. Pumping was completed in September and an in-tank video taken in December showed no supernate visible on the surface of the waste, which appears to be saltcake. The video shows a relatively level surface with some caving and crowning. Total waste is 448.7 Kgallons, with drainable liquids 4.0 Kgallons and no pumpable liquids.

(8) S-110 was interim stabilized by Jet Pumping in January 1997. Pumping was completed in July 1996, and an in-tank video taken in December showed no supernate visible on the surface of the waste, which appears to be saltcake. The level is not consistent and there appears to have been some caving and crowning. Total waste is 389.0 Kgallons, with drainable liquids 29.8 Kgallons and pumpable liquids 23.4 Kgallons.

(9) BY-109 was interim stabilized by Jet Pumping in July 1997. Pumping was completed in May 1997, and an in-tank video taken in June indicated there is a relatively uniform, slightly concave, crusty/cracked contour over most of the surface with no visible supernate. Total waste is 290.0 Kgallons, with drainable liquids 36.7 Kgallons, and pumpable liquids 20.3 Kgallons.

TABLE I-1. SINGLE-SHELL TANKS INTERIM STABILIZATION STATUS (sheet 3 of 3)

(10) BY-103 was interim stabilized in November 1997, after completion of jet pumping in September. An in-tank video taken in February 1997 showed no visible surface liquid and no evidence of an intrusion. The waste was dry and flaky. Dried, caked waste was suspended from many of the pipes and pieces of process equipment. The overall surface of the waste seemed to slump slightly towards the center of the tank. Total waste is 414 Kgallons, with drainable liquids 38.3 Kgallons, and pumpable liquids 31.9 Kgallons.

TABLE I-2. TRI-PARTY AGREEMENT SINGLE-SHELL TANK INTERIM STABILIZATION SCHEDULE

May 31, 1998

As part of the Controlled, Clean, and Stable mission, the Single-Shell Tank Interim Stabilization Project goal is to mitigate the risk to the environment from a leak release from aging SSTs, by removing as much of the drainable liquid as practical, for safe storage prior to full waste retrieval.

New TPA milestones were negotiated effective September 23, 1996, to allow greater flexibility in the sequencing of tanks, in light of the latest technical information regarding tank waste safety status and watch list concerns.

Milestone	Description	Due Date	Actual Date	Comments
M-41-20	Start Interim Stabilization of 4 Single-Shell Tanks	9/30/96	3/24/96	S-108, S-110, T-104, and T-107 started.
M-41-21	Start Interim Stabilization of 2 Single-Shell Tanks	5/31/97 (1)	5/12/97	BY-109 started 9/10/96; T-110 started 5/12/97
M-41-22	Start Interim Stabilization of 6 Single-Shell Tanks	9/30/97 (2)(4)		BY-103 started 9/29/97, SX-104 started 9/26/97
M-41-23	Start Interim Stabilization of 8 Single-Shell Tanks	3/31/98 (3)(4)		
M-41-24	Start Interim Stabilization of 9 Single-Shell Tanks	9/30/98 (4)		
M-41-25	Start Interim Stabilization of 3 Single-Shell Tanks	3/31/99 (4)		
M-41-26	Start Interim Stabilization of 2 Single-Shell Tanks	9/30/99 (4)		
M-41-27	Complete Saltwell Pumping of Single-Shell Tanks	9/30/00 (4)		
M-41-00	Complete Interim Stabilization of Single-Shell Tanks including Intrusion Prevention	9/30/00 (4)		

(1) On March 13, 1997, Department of Ecology (Ecology) approved Change Control Form M-41-96-03, extending M-41-21 from March 31 to May 31, 1997.

(2) Change Control Form M-41-97-01 was sent to Ecology on June 27, 1997; Dispute Resolution invoked on July 16, 1997. This Change Request was denied by the Director of Ecology on February 10, 1998.

(3) Change Control Form M-41-97-02 was sent to Ecology on December 29, 1997. Dispute Resolution invoked on January 13, 1998. This Change Request was denied by the Director of Ecology on March 10, 1998.

(4) Path Forward Plan submitted to Ecology on April 15, 1998, projects completion date of September 30, 2004.

TABLE I-3. SINGLE-SHELL TANKS CONTROLLED, CLEAN, AND STABLE (CCS) STATUS

May 31, 1998

The Controlled, Clean, and Stable (CCS) Mission Goals are to substantially reduce the operations and maintenance costs for the Single-Shell Tank Farms, to operate within the safety envelope, remove pumpable liquid wastes and contaminated soils/debris, and to achieve compliance with near-term regulatory requirements.

Facility	Completion Due	Completed	Comments
TY-Farm	December 29, 1995	December 29, 1995	Officially designated CCS in March 1996
BX-Farm	September 30, 1996	September 19, 1996	BX-103 has been declared to have met current interim stabilization criteria, and is therefore included in CCS
TX-Farm	September 30, 1996	September 17, 1996	
T-Farm (1)	June 30, 1997		
B-Farm (1)	September 30, 1997		
BY-Farm (1)	September 30, 1997		

(1) Controlled, clean, and stable activities have been deferred on these tank farms until funding is available

TABLE I-4. SINGLE-SHELL TANKS STABILIZATION STATUS SUMMARY

May 31, 1998

Partial Interim Isolated (PI)

EAST AREA	
A-101	
A-102	
AX-101	
BY-102	
BY-103	
BY-105	
BY-106	
BY-109	
C-103	
C-105	
C-106	
East Area	11

WEST AREA	
S-101	
S-102	
S-103	
S-106	
S-107	
S-108	
S-109	
S-110	
S-111	
S-112	
SX-101	
SX-102	
SX-103	
SX-104	
SX-105	
SX-106	
T-101	
T-104	
T-107	
T-110	
T-111	
U-102	
U-103	
U-105	
U-106	
U-107	
U-108	
U-109	
U-110	
U-111	
West Area	29
Total	40

Intrusion Prevention Completed (IP)

EAST AREA	
A-103	
A-104	
A-105	
A-106	
AX-102	
AX-103	
AX-104	
B-FARM - 16 tanks	
BX-FARM - 12 tanks	
BY-101	
BY-104	
BY-107	
BY-108	
BY-110	
BY-111	
BY-112	
C-101	
C-102	
C-104	
C-107	
C-108	
C-109	
C-110	
C-111	
C-112	
C-201	
C-202	
C-203	
C-204	
East Area	55

WEST AREA	
S-104	
S-105	
SX-107	
SX-108	
SX-109	
SX-110	
SX-111	
SX-112	
SX-113	
SX-114	
SX-115	
T-102	
T-103	
T-105	
T-106	
T-108	
T-109	
T-112	
T-201	
T-202	
T-203	
T-204	
TX-FARM - 18 tanks	
TY-FARM - 6 tanks	
U-101	
U-104	
U-112	
U-102	
U-202	
U-203	
U-204	
West Area	53
Total	108

Interim Stabilized (IS)

EAST AREA	
A-102	
A-103	
A-104	
A-105	
A-106	
AX-102	
AX-103	
AX-104	
B-FARM - 16 tanks	
BX-FARM - 12 tanks	
BY-101	
BY-102	
BY-103	
BY-104	
BY-107	
BY-108	
BY-109	
BY-110	
BY-111	
BY-112	
C-101	
C-102	
C-104	
C-105	
C-107	
C-108	
C-109	
C-110	
C-111	
C-112	
C-201	
C-202	
C-203	
C-204	
East Area	60

WEST AREA	
S-104	
S-105	
S-108	
S-110	
SX-107	
SX-108	
SX-109	
SX-110	
SX-111	
SX-112	
SX-113	
SX-114	
SX-115	
T-101	
T-102	
T-103	
T-105	
T-106	
T-107	
T-108	
T-109	
T-111	
T-112	
T-201	
T-202	
T-203	
T-204	
TX-FARM - 18 tanks	
TY-FARM - 6 tanks	
U-101	
U-104	
U-110	
U-112	
U-201	
U-202	
U-203	
U-204	
West Area	59
Total	119

Controlled, Clean, and Stable (CCS)

EAST AREA	WEST AREA
BX-FARM - 12 Tanks	TX-FARM - 18 tanks
	TY FARM - 6 tanks
Total	36 tanks

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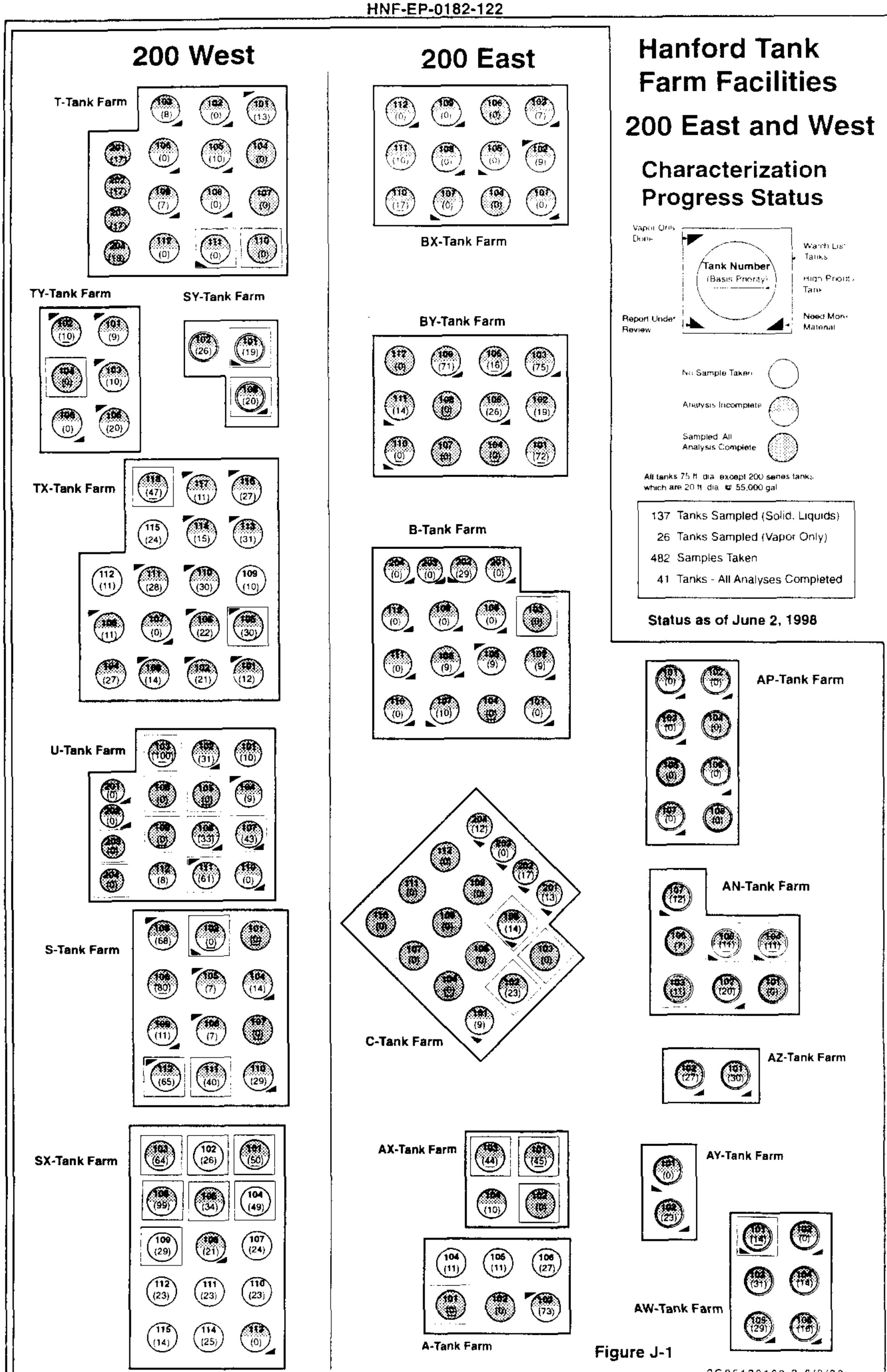
APPENDIX J

CHARACTERIZATION PROGRESS STATUS



200 West
200 East
Hanford Tank Farm Facilities
200 East and West
Characterization Progress Status
Vapor Only Done
Watch List Tanks
Tank Number
(Basis Priority)
High Priority Tank
Report Under Review
Need More Material
No Sample Taken
Analysis Incomplete
Sampled All Analysis Complete
All tanks 75 ft dia except 200 series tanks which are 20 ft dia @ 55,000 gal
137 Tanks Sampled (Solid, Liquids)
26 Tanks Sampled (Vapor Only)
482 Samples Taken
41 Tanks - All Analyses Completed
Status as of June 2, 1998
T-Tank Farm
TY-Tank Farm
SY-Tank Farm
TX-Tank Farm
U-Tank Farm
S-Tank Farm
SX-Tank Farm
BX-Tank Farm
BY-Tank Farm
B-Tank Farm
C-Tank Farm
AX-Tank Farm
A-Tank Farm
AP-Tank Farm
AN-Tank Farm
AZ-Tank Farm
AY-Tank Farm
AW-Tank Farm
2G95120163.3-6/2/98

Figure J-1

FIGURE J-1. CHARACTERIZATION PROGRESS STATUS CHART LEGEND
(Sheet 2 of 2)

May 31, 1998

200 East/West	The chart divides the two areas.
Tank Farms	Each tank farm is represented by a rough schematic of the tank layout and a heading naming the farm.
Circles	Tanks are depicted by a circle for single-shell tanks and a double circle for double-shell tanks.
Boxes	A thin line box around a tank inside a tank farm denotes "Watch List" status, in concurrence with Table A-1 of this document.
Numbers in Circles	The top number is the tank number. The number in parentheses is a weighted priority number, described in WHC-SD-WM-TA-164, "Tank Waste Characterization Basis." The numbers can be compared to each other to gain appreciation of relative priority: the higher the number, the greater the priority to sample and analyze.
Underlined Numbers	If a number in parenthesis is underlined, it is denoted as a "Characterization Basis Tank," as described in WHC-SD-WM-TA-164, "Tank Waste Characterization Basis." These are key tanks taken from the priority list that are of principal interest to the Characterization Program.
Circle Shading	The shading in the circle indicates the degree to which sampling and analysis are complete per requirements described in applicable Data Quality Objectives (DQOs). If blank, no characterization sampling has taken place. If fully shaded, the sampling and analysis are complete for each DQO applicable to that tank. Tanks in which characterization has begun but is not complete are designated by being half shaded.
Corner Triangles	Small triangles near a tank circle give further information on half-shaded tanks. Upper left corner triangles indicate that vapor samples have been taken from the tank. Lower left-hand corner triangles indicate that the tank has been sampled, analyzed, and a formal report has been written on the condensed phase sampling. Further status of the tank will be determined after review of the report is complete. Lower right-hand corner triangles indicate that some review has been completed and it has been determined that more sampling is needed to resolve the DQO requirements. Absence of triangles from a half shaded tank indicates recent condensed phase sampling.

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